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ORIGINAL LECTURES.

CLINICAL LECTURE ON PERIOSTITIS.

Delivered at the College of Physicians and Surgeons, Chicago, Illinois,

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Reported by WILLIAM WHITFORD.

GENTLEMEN,—We commence, this morning, the subject of the inflammatory diseases of bone; second only in importance to the subject of fractures. It is well, before calling your attention to the pathological questions involved in this class of diseases, to refer very briefly to the peculiarities of bone-structures as compared with those of the soft parts. The periosteum is a fibrous membrane surrounding bone, all the bones being covered by this structure, with the exception of the internal surface of the cranium and the articular surfaces of bone. Fibrous and unyielding in character, it is divided histologically and anatomically, as well as from a pathological stand-point, into two distinct and well-marked layers,—namely, the *external layer*, consisting of a stroma or nidus of connective tissue, with its fibres arranged both parallel and reticular, and the *internal* or *osteogenetic layer*,—the so-called condima of Billroth,—composed of a layer of cells which we term osteoplasts, and which are attached to a fine reticulum of connective tissue between the external and the internal layer, which also constitutes the portion of the periosteum destined to furnish material for the production and growth of bone. If we consider the denseness of the structure, its attachment to the subjacent bone, and more particularly the anatomical relations existing between the vascular supply of the periosteum and the bone proper, we can readily imagine that any disease affecting primarily the periosteum or the bone is destined to affect the remaining structure by extension of the disease along the fibrous tissue and blood-vessels, from the periosteum to the bone or from bone to periosteum. The older pathologists taught that whenever bone was denuded of its periosteum it was invariably destined to become necrosed, believing that the essential vascular supply was furnished by the periosteum. Clinical observation, however, has shown that the vascular supply derived from the periosteum is not essential to the nutrition and growth of the subjacent bone. It has been distinctly observed, taking the case of the shaft of a long bone, that if a ring of periosteum be removed under proper antiseptic precautions, and if, after the healing of the wound, the bone be fractured at this particular point, the formation of a callus progresses the same as though the periosteum had not been injured or removed, showing conclusively that the callus, which is destined to unite the fractured ends of the bone, is not derived from the condima, but from the fractured surfaces of the bone itself.

Great confusion has existed in classifying inflammatory diseases of bone. At one time pathologists believed that all inflammatory diseases of bone originated in the periosteum. It is well to state that, as a primary disease, periostitis is exceedingly rare; as a secondary affection, it occurs with almost every form of inflammation which affects bone. Again, it was assumed that inflammation had its starting-point in the bone-substance proper: hence we read and hear so much of osteitis. Later research, however, and the results of experimentation have shown that ninety-five out of every hundred cases of inflammatory affections of bone originate primarily in the medulla,—that the so-called cases of periostitis and osteitis are, in fact, cases of osteomyelitis. It has been observed in pathological specimens in all stages of inflammation and degeneration that the primary seat is almost invariably found in the medullary tissue; that the bone-tissue proper—bone-cells, if you please—simply occupy a passive position. This is easily understood, if we consider, by analogy, inflammation as it involves the soft tissues. You will remember that the connective tissue is usually the seat of primary changes in all forms of inflammation,—that it forms the basis of degeneration and of transformation of mature tissue into inflammatory, embryonal, or granulation tissue. The more essential structures usually are passive in the inflammatory process. The same holds true in cases of inflammation of bone. We can readily

conceive, if the periosteum be the primary seat in cases of periostitis, that by extension of the fibrous tissue along the vessels which enter the subjacent bone, forming a continuous reticulum between the connective tissue in bone and the periosteum, a certain degree of inflammation can extend from the periosteum into bone without primarily originating in the medullary tissue. It would be more proper to designate them as cases of interstitial inflammation of bone, for the same reason that we speak of interstitial inflammation of the parenchyma, kidney, liver, and lungs. The primary seat is in the connective tissue around the vessels, and the essential histological elements occupy a passive position, suffering secondarily by exudation from the nidus of connective tissue, strangulation, degeneration, and absorption. Consequently, in our classification of inflammatory diseases of bone, I will call your attention (*a*) to periostitis as a primary disease, premising that as such it is an exceedingly rare affection.

I will first discuss its etiology. In cases of severe contusion, of compound and subcutaneous fractures, affecting primarily and directly the periosteum, the injury being accompanied by a certain degree of reaction, always of a productive character, results in the exudation of formative material underneath the periosteum, the inflammatory process resulting in infiltration or a migration of the white corpuscles into the interstitial meshes of the periosteum. We have, then, a condition of subperiosteal exudation and infiltration; in fact, all changes of a histological character destined to form tissue of its own kind serve as a basis for the production and reparation of the broken ends of bone. Consequently, traumatic periostitis is invariably of a productive character, provided, however, that no infection has taken place. The process is one of reconstruction between the lost relations of the injured parts. For instance, if the periosteum have become separated over a considerable surface of bone, as we find it frequently in cases of fractured rib, one side of the periosteum being lacerated, the other by a displacement between the ends of the fractured bone becoming separated or detached, with certain spaces between it and the bone, the result is a direct adhesion between the denuded bone and the separated periosteum through the medium of the exudation issuing under the condima from the lacerated vessels. This form of periostitis you will recognize, clinically, by a slight degree of pain, a moderate amount of swelling, subsiding as the process of organization proceeds and as reconstruction takes place. This is the so-called traumatic periostitis, independent of infection. Its infective forms, on the other hand, more particularly that form which is the result of invasion of the specific microbes of suppuration at the seat of injury, contusion, or fracture, or the indirect localization of the microbes through the medium of the circulation, invariably results in a process of destruction (suppuration). From your lectures on "Suppuration" you will remember that we made a positive assertion, exclusive of the action of certain chemical poisons, that "no microbes, no suppuration." This assertion holds true in cases of periostitis. Periostitis not resulting in suppuration is usually a periostitis produced by some other cause. As a primary disease, suppurative periostitis in its acute form is almost unknown. Secondary periostitis occurs as a result of osteomyelitis, infection by the specific microbes taking place. The extent is marked by the surrounding primary bone-disease and area of bone-tissue involved, the periostitis corresponding with the extent of invasion. This form is characterized by a detachment of the periosteum from the subjacent bone, by the production of inflammation underneath the periosteum; consequently, in cases of this kind, on exposing the bone we will find a periosteum detached over the same area of bone that marks the extent of the primary bone-disease. We must not necessarily conclude from the fact of the periosteal detachment that the bone underneath is necrosed. The same reason which explains the integrity of bone will tend to show that its vitality need not be impaired, from the fact that the periosteal blood-supply has been sacrificed by the inflammatory process. The bone may still receive an adequate blood-supply from the remaining nutrient arteries entering the epiphyseal sinuses of long bones. Extension of the process takes place along the vessels, the microbic invasion being carried on through the medium of the vessels connecting the periosteum and the bone. Under favorable circumstances, an early affection of the products of inflammation, the bone not having become necrosed, the

cavity assuming a healthy granulating process, the detached periosteum may again become attached to the apparently-dead bone, and the process of reconstruction become complete. If the vessels within the bone itself are involved as the result of embolism by microbic invasion, or of thrombosis (if added to the suppurative periostitis), necrosis is an inevitable occurrence. You will recognize this form clinically from the rapidity with which the process extends. The entire shaft may become denuded within forty-eight or seventy-two hours. It can be recognized again by paying proper attention to the clinical history of the case, by tracing the disease to the primary cause (osteomyelitis). This form, clinically, is important to remember from the fact that the extent of separation may involve proximate joints. The periosteal separation continuing along the epiphyseal line may produce a separation of the ligaments attached to the epiphysis, and we may have a direct involvement of the joint in the same process.

Another distinct form (and one that we recognize as usually commencing primarily in the periosteal structure) is the so-called syphilitic periostitis, due to the action of a syphilitic virus directly upon the periosteum. This form usually assumes a productive character; it seldom results in suppuration; it is one of the various and multiple manifestations of tertiary syphilis. It is one of the clinical features of the disease, affecting most frequently the cranium or the anterior surface of the tibia; it assumes a circumscribed form, with well-marked margins, the exudation taking place underneath and between the periosteum and the bone,—the result usually of tissue-proliferation from the internal layer or condima of the periosteum producing a well-defined, circumscribed, hard swelling. Instead of the products of proliferation giving rise to the formation of pus, they form embryonal tissue out of the histological elements of the condima, and the process ultimately will terminate in the transformation of granulation-tissue (1) into cartilage and (2) into bone in the formation of so-called syphilitic exostosis. You have learned that in fractures of the skull union takes place by the minimum amount of provisional callus; consequently the product of tissue-proliferation in this locality is more likely to be a granulation-tissue, and this granulation-tissue, on account of its failure or absence of the osteogenetic influence from the subjacent bone, is destined to undergo degeneration, softening, removal by absorption, or suppuration.

Another and exceedingly important form is the so-called tubercular periostitis,—a periostitis due to the presence of a different form of microbes; consequently, the products of inflammation are varied. It is a well-recognized fact that this form may exist independently of preceding disease; and, although more frequently secondary, it does exist as a primary form. The deposit of exudation between the vessels and separation of the connective-tissue spaces produces a local anæmia at the site of the exudation; consequently the product does not go on transforming itself into tissue of a higher degree, but usually terminates in caseation, a conversion of the products of exudation into a cheesy material; this cheesy material acting as an irritant invades the tissues, the area of anæmia increases, and we have added to the tubercular degeneration an element of inflammation of bone around the cheesy product, and this product, acting as an irritant, terminating in the usual product of inflammation, suppuration. It is recognized clinically by the peculiar form of caries or destruction of bone underneath the periosteum. If you examine an abscess-cavity the result of tubercular periostitis, you will be impressed with the fact that the internal lining of the abscess-cavity consists of a deep layer of granulations, the granulations invading the adjacent tissues. If the abscess have been opened spontaneously, you will recognize the character of the disease by the undermining of the skin and the absence of all symptoms indicative of inflammation the result of microbic invasion; you will notice an ulcer thus formed by its circumscribed, well-marked margins, the granulation-tissue invading the skin and the subjacent tissues as well as the superficial portion of bone, the process of destruction advancing as infiltration takes place.

In making your differential diagnosis you will endeavor to elicit evidence of tuberculosis in other parts of the body by carefully inquiring into the clinical history of the case. Usually the epiphyseal extremities of long bones and the short bones, especially in close proximity to joints, favor the localization of tubercular processes.

Some forms of periostitis are diffuse from the very nature of the case, and from the invasion by the specific microbes of suppuration. On the other hand, both the syphilitic and tubercular virus usually result in a periostitis of a circumscribed character. The acute form of diffuse periostitis being a secondary affection, the primary is conspicuous for its prolixity.

We recognize three distinct and well-marked varieties of primary periostitis,—the osteoplastic, the suppurative, and the granuloid. The osteoplastic periostitis usually follows traumatism without infection. The suppurative or destructive form is due to the invasion of germs, which invariably act in this manner whatever tissues are involved; the tubercular variety terminating in caseation and inflammation, suppuration following as a secondary consequence. The so-called periostitis granulosa, or granuloma of Friedmann, is that form which is destined to remain stationary, which shows no tendency to transformation of the granulations into tissue of a higher type. This form, primary or secondary, as the case may be, either originating as the result of extension of the granular dépôt in bone, is noted clinically for its chronic character. Instead of an intense pain marking its onset, it comes slowly and insidiously; the tissues not being infiltrated rapidly by the products of inflammation, we have a process which, instead of making painful tension underneath the periosteum or within the bone, is accompanied *pari passu* with disintegration of pre-existing tissue, consequently the space occupied by the granulations is the result of removal of pre-existing tissues.

Periostitis granulosa is noted for its resistance to treatment and for the latency with which the symptoms appear; consequently its clinical feature is expressed by the word "progressive." This form is the direct result of invasion of tissues by the specific germs of tuberculosis. The abscess-cavity, as it were, still remains unaffected, although the germs may be present in small numbers, as has been observed by Koch and all the experimenters and discoverers who have made this subject a special study.

In considering the symptoms and diagnosis of (*b*) chronic periostitis, I call your attention first to that conspicuous and important symptom, pain. Periostitis as it affects the distal phalanx—the so-called paronychia (felon)—in the majority of cases is the result of infection due to traumatism; but on account of the unyielding structure of the periosteum, but more particularly on account of the rapidity with which the process of exudation takes place, we have that important pathological factor, tension. Pain is an important symptom, and relieved only by relieving tension. Tenderness is a more important element than pain itself. While pain may be present in some forms,—by this I mean a spontaneous or idiopathic pain,—you occasionally will find, by testing the effect of pressure, evidences of tenderness, as, for instance, in cases where the pain is deeply located,—where you are not able to recognize any amount of swelling,—where, from the absence of symptoms, you may have to rely upon this clinical evidence in arriving at a correct diagnosis. Again, we notice the frequency with which it occurs in the neighborhood of joints,—as around the hip-joint,—where circumscribed tenderness may indicate to you the existence of the disease. If it remains circumscribed, local, and does not change its situation, you may properly suspect the existence of periostitis, secondary or primary, as the case may be. The swelling is the result of tissue-proliferation, of infiltration in and underneath the periosteum or periosteal tissues. As long as the exudation remains limited to the space beneath the periosteum and bone, the swelling is usually slight; but if the external layer of the periosteum participates so that an exudation of the cells upon the bone occurs underneath the periosteum, the rapidity with which the swelling forms increases. You can readily imagine, from the firmness with which the periosteum is attached to bone, that if the product is of a plastic character the space is limited, consequently the swelling is slight. In chronic cases, therefore, with a tendency to the formation of productive material, the swelling is moderate and increases slowly, while, on the other hand, in acute cases the swelling is slight as long as the products of inflammation and infection are limited to the periosteum, but as soon as this district is in communication with the tissue around the periosteum we have a rapidly-increasing swelling, the result of extension from the periosteal tissues. If the periosteum be opened by incision, we have the means of direct inspection. In

cases of acute periostitis you may find a denuded bone presenting all the evidences of necrosis; in chronic periostitis we have either a honey-combed appearance of carious bone, or the floor of the abscess lined by a continuous uninterrupted layer of granulation. Inspection alone will give you a true picture or impression of the character or proper condition of the bone underneath. You must combine inspection with exploration. Where periostitis or superficial osteitis has resulted in partial death of bone, we have the so-called condition of *caries necrotica;* but if you wish to examine and ascertain the condition of the bone above as to whether there has been a loss of continuity of surface over the bone, you will resort to acupuncture. If you come in contact with firm, unyielding bone, you may satisfy yourselves that the bone is either intact or that separation of the periosteum has taken place without necrobiosis. If, however, on introducing the needle you find a rough surface here and there, and you can perforate the bone some distance (on account of the corroding effect of the granulations), you may rest assured that you are dealing with a case of caries. Impairment of function may be an important element, and you may have to rely upon this evidence almost exclusively if the disease be located so remotely as to preclude the possibility of all access of direct inspection or examination. The effect of the diseased bone upon the function of the part will not only satisfy you that you are dealing with an inflammatory condition either in the periosteum or in the bone, but it will also locate the disease, and to a certain degree indicate its extent. If, for instance, we have a periostitis affecting structures in close proximity to the hip-joint,—if after eliminating all the elements which we generally expect in cases of intra-articular disease as evidenced by direct examination (compression, extension, and so on), by testing mobility in the joint, we have evidences pointing towards a chronic inflammation of the hip-joint; therefore simple impairment of function limited to the area of motion, with loss of functional capacity of the joint, would indicate its existence.

Infiltration is the first point in considering the morbid anatomy. In examining post-mortem specimens, you will have in acute cases, before suppuration has taken place, infiltration of the white corpuscles into the connective-tissue spaces underneath the periosteum. If, on the other hand, you examine the disease still later, the result of a detrimental action of the specific microbes upon the products of exudation, you find evidences of suppuration, and the exudation is of a productive kind, you will find an increase in the thickness of the osteoplastic layer, a proliferation of the osteoplasts in the substance of the periosteum, and, as a direct result, embryonal tissue, embryonal exudation, embryonal transformation. If, on the other hand, the disease have been the result of infection with a tubercular virus, you will have all the evidences indicative of tuberculosis,—the abscess-cavity lined with granulations and miliary tubercles. A close microscopical examination will determine the primary cause. In cases of acute periostitis attended by suppuration, the vascularization will keep pace with the inflammatory process in proportion to the extent of the exudation, the vascular supply becoming diminished by compression, but as a result of the effect of the primary microbic cause of the periostitis upon the vessels themselves you will have a phlebothrombosis, a venous obstruction, which is an important pathological element in considering the effects of the circulation upon the products of exudation. In the tubercular variety the diminution of the vascularization of the products of inflammation constitutes a most important factor, the existence of local areas of anæmia determining the fate of the exudate material (caseation), the production of bone depending upon the primary cause, taking place from the condima or intima underneath the periosteum. This pathological condition can take place only in productive or osteoplastic periostitis. *No degeneration, no reproduction of bone.*

The primary formation of a callus is always evidenced first around the blood-vessels, just the same as the formation of a callus after fractures. The deposition of bone takes place as a secondary effect following rarefied osteitis. The death of bone following destructive periostitis may either involve a considerable surface of the bone or it may be death on a minute scale.

In considering the treatment of periostitis, I am happy to make an exception to my general rule in regard to the effects of drugs. It is a well-known fact that

syphilitic periostitis will yield very readily to the administration of mercury or iodide of potassium. In cases of this kind *never* resort to operative measures before having thoroughly tested antisyphilitic treatment. Evidences of tertiary syphilis will arise in many instances upon the administration of large doses of iodide of potassium, from the fact of its having a peculiar effect upon the fibrous tissue, aside from its antisyphilitic effects, and it is best adapted (1) to neutralize the effect of the syphilitic virus, and (2) to promote absorption. By large doses I mean from ten to twenty grains three or four times a day. It will diminish pain. It is a most satisfactory drug. If a case prove obstinate, and iodide of potassium fail, put your patient under the influence of mercury by inunction, and give small doses of corrosive sublimate, combined with twenty or thirty grains of iodide of potassium, until you produce its physiological effect or until the active symptoms subside. Equable compression, by giving support to the circulation, by condensing the connective-tissue spaces, favors absorption, and should always be resorted to.

If severe, excruciating pain be produced, you may divide the dense periosteum by subcutaneous section or incision.

All these operations upon bone must be done under the strictest antiseptic precautions. If you incise, determine the exact condition of the subjacent bone; and if you find that suppuration has taken place you should invariably follow incision by thorough disinfection of the abscess-cavity.

ORIGINAL COMMUNICATIONS.

INTRA-CRANIAL HEMORRHAGE.

A RECORD AND CLASSIFICATION OF ONE HUNDRED AND FORTY-THREE CONSECUTIVE FATAL CASES OBSERVED IN MEDICO-LEGAL PRACTICE AND IN PRIVATE AUTOPSIES IN THE CITY OF PHILADELPHIA.

Abstract of a Paper read before the Pathological Society of Philadelphia, March 25, 1886,

BY H. F. FORMAD, M.D.

I WISH to make a few remarks upon the different forms of intra-cranial hemorrhage which I have observed, and will present a number of specimens in illustration. There exist no well-defined descriptions of the various forms of intra-cranial hemorrhage with reference to their etiology, and no classification that could be of any service in medico-legal examinations, and I would submit the classification and observations presented below as particularly acceptable for the latter purpose. These records may also be of some use to the surgeon who wishes to trephine. The observations are sufficiently numerous to warrant conclusions of importance for various ends. I regret that I met my cases on the autopsy-table only, and hence am unable to offer clinical details. In some cases the history was far from being reliable, and in a few the history was left to conjecture from the surroundings, the circumstances of the case, and the appearances and general lesions of the body.

I also wish to give credit to my colleague in coroner's work, Dr. R. R. Stewart, for his valuable assistance in these observations, as well as to his assistants, Drs. A. J. Plumer and George H. Chambers.

The following cases of intra-cranial hemorrhage embrace the results of various kinds of head-injuries (traumatic), and cerebral apoplexies (idiopathic hemorrhages) as well. By the term cerebral apoplexy I mean exclusively hemorrhages in the brain, and do not refer to "congestive," "serous," "embolic," or "nervous" apoplexies, and other affections which tyrannic nomenclature has thrown together under the name of apoplexy.

Idiopathic cerebral apoplexy should also be strictly separated from a traumatic cerebral hemorrhage. This is not done by many writers. The latter can be further subdivided into very well defined sub-varieties of hemorrhages, each etiologically distinct, as will be shown below. These observations will clearly show the necessity and usefulness of a classification such as suggested. There should never be any reasonable doubt at the post-mortem table as to whether a cerebral hemorrhage is due to disease or to injury, or to both combined; nor as to whether a head-injury has preceded or followed an intra-cranial hemorrhage. The diagnosis between the conditions just stated is much more difficult during life. I have seen errors made by the foremost surgeons and physicians, and in the best hospitals in this city. Cases of apoplexy have been diagnosticated as cases of fracture and trephined, and I have also seen cases of fracture of skull unrecognized and untouched, —left to die in the medical wards.

Upon the post-mortem table, however, there should be no difficulty in recognizing

such lesions at the present status of morbid anatomy as a distinct and well-defined science. After sufficient accurate observations have been made, and after seeing conditions repeat themselves, case after case alike, and having in the majority of instances cause and effect directly before the eyes, one should be enabled in disputed cases to make a post-mortem diagnosis which leaves but little room for doubt.

The cases of intra-cranial hemorrhage which I have observed may be divided into the following eight different classes (the accounts being given here in abstracted form):

CLASS I. (Twelve cases).—*Post-mortem Appearance:* One or more small hemorrhages in the fasciculi teres in fourth ventricle; also ecchymoses in the lining of the other ventricles; no massive hemorrhage anywhere; cerebral substance as well as membranes intensely congested; cranium much congested; drops of blood oozing from cut surface and from periosteum all over; marks of contusion in scalp, with more or less ecchymosis, noted in all cases.

Histories: In two cases death was caused by electricity (details will be recorded elsewhere). Ten cases revealed histories of concussion of brain from injuries to head, without fracture of skull. Death was rapid or sudden from shock in all these cases. Six were males and six females. The majority were young persons.

CLASS II. (Twenty-three cases).—*Post-mortem Appearance:* Massive hemorrhage (blood-clot) of various sizes found between pia and dura mater; location, in the majority of cases, about opposite to place of application of violence; in none of these cases was this meningeal blood-clot located immediately beneath the point of application of violence; ventricular ecchymoses also found usually; brain anæmic in the majority of cases wherever hemorrhage large; scalp-injury well marked in some, in others less so, while in a few cases it was hardly noticeable.

Histories: Concussion from injuries to head without fracture in twenty-one cases; with fracture of skull in two cases. Death rapid (all within one hour) or sudden, either from shock or from compression of brain, the result of pressure from clot, or from both. Fourteen males, nine females. Ages varied.

CLASS III. (Forty-five cases). — *Post-mortem Appearance:* Massive hemorrhage (blood-clot) usually quite large, located between dura mater and inner surface of fractured skull, and at the site of application of violence only; brain anæmic.

Histories in all these cases revealed injuries to skull, from accidents, blows, or other violence, resulting in fracture of skull. Death, on the average, ensued slowly, from compression or anæmia of brain, in the lapse of from several hours to several days; in a few cases from five to eight days. Thirty-eight males and seven females. Majority young and middle-aged persons.

CLASS IV. (Twelve cases).—*Post-mortem Appearance:* Massive hemorrhage the same as in the preceding class, but occurring both at site of application of violence and also on some point on the opposite side of skull; the first being a large clot between dura mater and skull, the latter a small one in the arachnoid, between dura and pia mater. At the site of injury there was found a fracture of the skull in all these cases, so that they presented the combined features of Classes II. and III.

Histories, in these twelve cases, showed injury to skull, resulting in both fracture and concussion. Death was nearly instantaneous in all these cases. Nine were males, and three were females. Mostly young and middle-aged persons.

CLASS V. (Nine cases).—*Post-mortem Appearance:* Punctiform and multiple hemorrhages into the tissues of the dura mater, which showed much thickening and adhesions to inner surface of skull from chronic hemorrhagic pachymeningitis; great œdema of the pia mater; brain congested.

Histories in these cases revealed former attacks of sunstroke or old injury of head. Death usually sudden, and usually following a fall or severe intoxication and excitement. Ages of deceased between 20 and 50. All males.

CLASS VI. (Thirty-four cases).—*Post-mortem Appearance:* Massive hemorrhage of various sizes into the brain-substance proper, and thence into one or both of the lateral ventricles; hemorrhagic softening of brain-substance of corpora striata or their vicinity; no meningeal hemorrhage in any of these cases, though in some instances blood was observed to have leaked out from the inner ventricles through the transverse fissure and the

fourth ventricle, and some usually liquid (post-mortem) blood would be seen upon the periphery of the brain, in the fissures, and in the meshes of the pia mater; brain-substance in nearly all cases quite anæmic; atheroma of cerebral vessels in all but three cases; multiple small aneurisms of cerebral vessels noted in several cases; chronic pachymeningitis in various degrees in all but five cases; in some cases there were scalp-injuries from secondary falls,—*i.e.*, falls that were the result of a preceding cerebral hemorrhage.

Histories, whenever obtainable, revealed either alcoholism, rheumatism, or syphilis. Middle or advanced age. Twenty-six males, eight females. Death in the majority of cases ensued slowly. These are true cases of idiopathic cerebral apoplexy. Many of these cases came under coroner's jurisdiction on account of suspicion of violence.

Class VII. (Six cases).—*Post-mortem Appearance:* Massive hemorrhage of various size, below pia mater, into brain-substance, without breaking into lateral ventricles. In one case the blood-clot involved the substance of the pons and protruded into fourth ventricle; in two cases it occupied the substance of the right parietal lobe, which was the seat of an abscess; in three cases the hemorrhage was multiple in smaller foci, with localized hemorrhagic softening of periphery of brain-substance in various places; in three cases there was atheroma, and in the other three fatty erosions of the cerebral vessels; chronic pachymeningitis in all cases; brain-substance congested.

Histories were those of former head-injuries, alcoholism, and probable syphilis. Death rapid, following intoxication or exertions. Age advanced in all cases. Five were men. Foul play had been suspected in all these cases.

Class VIII. (Two cases).—*Post-mortem Appearance:* Massive meningeal hemorrhage below pia mater combined with hemorrhage into ventricles; no visible hemorrhage into brain-substance; atheroma and multiple small aneurisms of vessels of pia and of choroid plexus; ecchymosis in scalp.

Histories of accidental falls. No previous symptoms of cerebral disease had been noted. Intemperate habits, injury of head leading to rupture of the diseased vessels, had evidently preceded the cerebral hemorrhage. The persons were at work (washing) at the time when, nearly simultaneously with the concussion from the fall, death ensued. Both were women. Ages, 57 and 63 years.

Remarks and Comments.—A number of cases of intra-cranial hemorrhage which were encountered have been omitted from the series above detailed; as well as several cases of compound comminuted fracture, in which the skull, membranes, and brain were partly pulpified into a mass, and hence the hemorrhage was not satisfactorily made out. I have also excluded chronic cases of cerebral hemorrhage and those resulting in abscesses or in a fatal lepto-meningitis or cerebritis after the patients had partly recovered from the immediate effects of the hemorrhage. Nor have I incorporated into those records another large class of intra-cranial hemorrhage,—viz., that of infantile meningeal hemorrhage. Of these I have seen many in coroner's work. Meningeal hemorrhage is common in infanticides and fœticides, and even in still-born children. I can offer no plausible explanation of the frequency of meningeal hemorrhage observed in the still-born, otherwise than that they were presumably due to traumatic injuries from violence or to compression of the cranium during protracted labor or when forceps had been injudiciously applied. I have not met with cerebral hemorrhage in children other than meningeal.

Returning to my classification, I would state that the quantity of the hemorrhage or the size of the clot in any case of intra-cranial hemorrhage appeared, in all the cases observed, to depend upon the duration or the time that elapsed from the moment of injury to death. In cases where death ensued rapidly or instantaneously from shock, as happened in many fatal cases of concussion, or even in fractures of skull followed by immediate death (as by falls from a great height), the bulk of the ante-mortem hemorrhage (the blood-clot) was remarkably small; or clots were occasionally entirely absent, and only a post-mortem oozing of liquid blood could be observed. Where death had been protracted for several hours, the blood-clot was usually large, weighing up to six or eight ounces, and causing death by compression of brain. In some cases of fracture of skull the hemorrhage is probably delayed for several hours or ensues but very gradually. Some patients are said to have

walked around for many hours after the injury, and subsequently, when the blood oozed out in sufficient quantity to compress the brain, they fell, became unconscious, and died in coma. In one case of this nature I found a meningeal clot weighing eight ounces.

In the cases in which the intra-cranial hemorrhage was voluminous and death instantaneous, there was very little scalp-ecchymosis; whereas scalp-hemorrhage was more pronounced where the intra-cranial hemorrhage was small and death delayed.

Further, in no case where there was internal cerebral hemorrhage was there any meningeal hemorrhage when the cerebral vessels were normal; and in no case of traumatic meningeal hemorrhage did I see any coincident ventricular hemorrhage (except small ecchymoses) unless there existed some old lesion of the vessels or substance of the brain. It appears, however, that blood from the lateral ventricles may leak through the foramen of Monroe into the third ventricle, and thence by the aqueduct of Sylvius find its way into the fourth ventricle; but in none of the cases did I observe that a primary hemorrhage into the fourth ventricle ever extended to the lateral ventricles, probably on account of its rapidly fatal character.

A hemorrhage on the outside of an uninjured pia mater cannot reach the interior of the brain or the lateral ventricles.

The source of the hemorrhage is often very difficult to determine. In fracture of the skull the hemorrhage is often diploic; in concussion of the brain the hemorrhage has for its source the vessels of the pia mater; in diseased conditions of the brain or in atheroma of vessels the small feeding branches of the middle cerebral and of the basilar artery bleed most frequently, and the blood, breaking into the lateral ventricles, forms clots in either one or both of the ventricles.

The view expressed by Dr. J. A. Lidell in his large treatise on apoplexy (New York, 1875, p. 113) that "meningeal hemorrhage not unfrequently occurs spontaneously, as well as in consequence of the operation of violent causes," and that (see page 120) "meningeal hemorrhage of spontaneous origin is not a rare affection," is unquestionably erroneous. Yet such "views" are quoted by writers on forensic medicine and presented to juries in murder-trials as *facts*. Ignorant or ill-informed post-mortem examiners can set murderers free, or, on the other hand, they can create unnecessary court-trials.

Conclusions.—1. Hemorrhages exclusively above the pia mater and above the dura mater—*i.e.*, on the outside of the brain—are always due to traumatism or to sunstroke, provided a cerebral source for hemorrhage is excluded, and the cerebral vessels and membranes were not diseased.

II. Hemorrhage in the floor of the fourth ventricle is always traumatic, provided there are no accompanying blood-clots in the lateral ventricles or any other part of the cerebral substance. If, however, the brain-substance is very *anæmic* (in the absence of a massive hemorrhage), then a ventricular ecchymosis may indicate that death ensued from epileptiform convulsions (idiopathic).

III. Hemorrhage exclusively below the pia mater or in any part of the brain-substance or into the ventricles (except the fourth) is always idiopathic,—*i.e.*, is due to disease.

IV. There must be a diseased condition of the cerebral vessels or substance in order to exclude violent causes and to ascribe a hemorrhage to disease. There must be traumatism (a fall or violence) in order to account for a hemorrhage in a normal brain.

V. The blood-clot in concussion of the brain is not found at the point of application of violence, but always somewhere about the opposite side of the brain, and always within the cavity of the arachnoid, —*i.e.*, between the pia and dura mater.

VI. The blood-clot in fracture of the skull is always found at the point of application of violence, immediately below and always between the dura mater and the fractured part of the skull itself. In rapidly fatal cases there may be a second, an intra-dural, clot in some other part of the brain, due to the effects of concussion.

VII. A blood-clot formed within the cranial vault is more favorable to the patient if due to fractured skull than if due to a mere concussion.

VIII. Only clotted blood and infiltration of blood-corpuscles into tissues indicate an ante-mortem hemorrhage; liquid blood is due to post-mortem oozing, and only stains, but does not infiltrate, tissues. In cases, however, where rapid asphyxiation or certain poisons co-operate with the traumatic injury in causing speedy death,

the blood may remain liquid and clots may fail to form.

IX. Severe bruises and cuts of the scalp may be seen in cases of idiopathic apoplexy where a sudden cerebral hemorrhage causes a person to fall.

X. In some cases it is impossible to decide by medical examination alone as to whether a head-injury and the resulting hemorrhage is due to a fall or to violence.

XI. External marks of violence may be invisible to the unaided eye in some cases of injury of the head or other parts, but are easily detected and also distinguished from post-mortem spots by means of the microscope.

XII. The bulk of an intra-cranial hemorrhage stands usually in inverse proportion to that of the external scalp-hemorrhage; but it stands in direct proportion to the duration or the time that has elapsed from the moment of injury to death.

REVIEW OF RECENT WORK IN MEDICAL CHEMISTRY.

BY WILLIAM H. GREENE, M.D.

ALBUMEN IN THE URINE.

P. FÜRBINGER recommends for the detection of albumen the use of gelatin capsules containing a mixture of the double chloride of mercury and sodium, sodium chloride, and citric acid. This mixture is only slightly hygroscopic, and precipitates albumen in flakes if any appreciable quantity be present, and produces a cloud if the proportion of albumen be so small that it cannot be detected by other reagents. In delicacy this test is almost equal to the double iodide of mercury and potassium, over which it possesses the advantage of not precipitating alkaloids. Since uric acid might be thrown down by the citric acid present, a concentrated urine should be diluted with half its volume of water before applying the test.

H. Millard uses for the detection of albumen a mixture of two parts of ninety-five-per-cent. carbolic acid with seven parts of pure acetic acid and twenty-two of potassium hydrate solution.

For the same purpose N. Kowalensky recommends a solution of uranyl acetate, which he claims will produce distinct flakes in a liquid containing as small a quantity as 0.019 per cent. of albumen. The precipitate is slightly soluble in water, but is rendered insoluble by an excess of the uranyl salt. It may be washed with alcohol, but dissolves readily in dilute acetic acid (two per cent.), and is re-precipitated when the free acid is neutralized. It is also soluble in dilute nitric acid, but the solution becomes clouded when concentrated nitric acid is added. Since the phosphates in normal urine will always occasion a precipitate, it is necessary for the detection of albumen that the precipitate shall be dissolved in dilute nitric acid and that strong nitric acid be added to the solution so obtained.

ARTIFICIAL ALBUMINURIA.

According to Julius Schreiber, albuminuria may be easily and safely brought about in healthy individuals by the application of two pads arranged as a screw-compress, and placed one in front, the other at the back of the thorax. The movements of the chest and the pulmonary circulation are thus impeded, and the experiment succeeds best with young subjects, of between ten and twenty years; from one to fifteen minutes' compression is generally sufficient. The urine of the healthy subjects, especially of the younger ones, was found to be slightly albuminous at certain hours of the day, even before the compression; boiling with acetic acid or addition of metaphosphoric acid produced a decided cloud; individuals in whose urine flakes were formed under these circumstances were excluded from the experiments. After the compression a notable proportion of albumen was found in the urine of twenty out of twenty-six cases, and in eight of twenty-four cases in which quantitative experiments were made the proportion of albumen varied from six to eighteen parts per one thousand. The albuminuria continued for about an hour after the compression. As Senator had previously found in physiological albuminuria, the seralbumen appeared to be accompanied by globulin in these cases. The volume of urine excreted was only slightly diminished. In two cases it was found that compression of the thorax diminished the elimination of urea, besides inducing albuminuria: the first excreted twenty-three grammes of urea a day before the compression, after it only 17.784 grammes per day, with 2.28 grammes of albumen; the second, whose daily elimination was twenty-six and twenty-four grammes the

two days before compression, excreted only 15.9 grammes after it, together with 1.14 grammes albumen.

INCREASED ELIMINATION OF SUGAR BY THE URINE AFTER INGESTION OF CARBOHYDRATES IN DIABETES MELLITUS.

Worm Müller has studied the influence of ingested carbohydrates on the excretion of sugar in health and in mild diabetes mellitus, marked differences resulting from the two conditions. The patients, to whom the carbohydrates were administered in the morning and after fasting, had been kept on rigid antidiabetic diet until the urine was free from sugar. As in the case of healthy subjects, ingested glucose passed into the urine in limited quantity; the transitory glycosuria so established was not greater than that appearing in health under similar circumstances, and disappeared in the course of a few hours. In the experiments with honey, in which as much as eighty-four grammes of levulose and glucose together were administered, a relatively large proportion of the latter passed into the urine, but never the former, the results being the same as in health, and corresponding with those previously published by E. Külz. Contrary, however, to the phenomena of health, the ingestion of starchy food was followed by the appearance of glucose in the urine. This glycosuria may begin in half an hour and terminate in an hour and a half. Saccharose and milk-sugar do not appear as such in the urine, glucose only being eliminated after their administration. From these results it would seem that diabetics differ from healthy subjects not only in the capacity to retain carbohydrates, converting them into glycogen in the liver, but by an excessive and abnormal tendency to bring about a fermentation whose location is yet to be established. No invertin appears to pass into the urine, for at a temperature of 38° (C.) diabetic urine fails entirely to invert saccharose in twenty-four hours.

CYSTINURIA.

Stadthagen has examined the urine of a thirteen-and-a-half-year old boy, of healthy family, who from time to time during four years passed by the urethra small cystic calculi. The patient, whose saliva responded feebly to the test for sulphocyanate, passed urine from which hexagonal crystals of cystine were deposited. The total sulphuric acid, including sulphuric ethers, was determined, and the not fully oxidized sulphur was estimated as easily-oxidized sulphur, or that capable of oxidation by potassium chlorate and sulphuric acid, and difficultly-oxidized sulphur which required fusion with nitric acid and soda for its oxidation. The sulphur of the sulphocyanates is readily oxidized: from thirty to forty per cent. of that contained in cystine is readily oxidized; the remainder is oxidized with difficulty, and so is nearly all of that contained in taurine.

Careful analyses, made on four days widely separated, showed a daily excretion of from two hundred and ninety-seven to three hundred and thirty-eight milligrammes of sulphur as sulphuric acid, and from eighty-nine to one hundred and twenty milligrammes of other sulphur, from fifty-one to sixty-nine milligrammes of the latter being difficultly oxidizable. The percentage of sulphur not as sulphuric acid to the total sulphur varied from eighteen to twenty-five. Healthy subjects of different age excrete from five hundred and sixty-nine to eight hundred and sixty-two milligrammes of sulphur as sulphuric acid, and from eighty-seven to one hundred and seventy-one milligrammes of other sulphur, from sixty-seven to one hundred and thirty-nine of the latter being difficultly oxidizable. The percentage of sulphur not as sulphuric acid to the total sulphur is from thirteen to seventeen. The quantity of sulphuric acid eliminated by the case of cystinuria was always below the normal, and Von Stadthagen concludes that under normal circumstances the sulphur of cystine is oxidized to sulphuric acid in the tissues.

INFLUENCE OF GLYCERIN, SUGAR, AND FAT ON THE EXCRETION OF URIC ACID.

J. Horbaczewski, who recently made the synthesis of uric acid by heating glycin and urea, has studied together with F. Kanera the influence of glycerin, sugar, and fat on the elimination of that acid. Glycerin taken with the food increases this elimination: the largest daily excretion was seven hundred and one milligrammes before beginning the experiment, and increased to eleven hundred and forty-nine milligrammes after taking two hundred grammes of glycerin. Saccharose, probably also other carbohydrates, exerts no direct action on the formation of uric acid, but by its "albumen-economizing" influence diminishes the excreted acid only as long

as the ingestion of sugar is continued. When it is stopped, the quantity of uric acid does not become normal until the whole amount that has not been excreted while taking the sugar is eliminated. Neutral fats act in a similar manner so far as the diminution of excretion is concerned, but the elimination becomes at once normal when the fatty diet ceases.

THE ACTION OF POISONS ON INTESTINAL WORMS.

W. von Schroeder has made some experiments on the ascaris mystax of the cat, and the ascaris lumbricoïdes of the pig, the latter of which is probably identical with the similar parasite of man. After removal from the dead animals the worms were preserved in a one-per-cent. solution of common salt, as recommended by Bunge, who found that they would so live from seven to ten days. To such a liquid the poisonous substance was then added: 0.8 per cent. sulphuric acid caused death in one and three-quarters to two hours; one per cent. sodium hydroxide in five to seven minutes, 0.2 per cent. in twenty minutes; 5.8 per cent. sodium carbonate in five to six hours; five per cent. potassium carbonate in three and a half to eighteen hours. The resistance to the action of energetic poisons was notable: the parasites lived more than three hours in a 0.5 per cent. strychnine nitrate solution, more than twenty hours in two per cent. conine bromide, four hours in two per cent. morphine chloride, and the same time in 0.5 per cent. veratrine. However, one hour in 0.1 per cent. corrosive sublimate, sixteen to twenty-six minutes in 0.1 per cent. nicotine, seventy-six minutes in 0.01 per cent. nicotine, and sixty to ninety-nine minutes in 0.005 per cent. of the same substance, were the extreme limits of life. Curiously enough, saturated aqueous solutions of santonine stimulated the movements of the worms and produced no other effect in forty hours; olive oil and castor oil saturated with santonine were inactive for forty-three and fifty-two hours respectively. The author therefore concludes, as Falck had previously done, that santonine may further the expulsion of ascarides, but that it does not kill them as is generally believed. The worms appear to hermetically close their bodies while in poisonous liquids: after eighteen hours' immersion in one per cent. potassium ferrocyanide only traces of that salt can be detected in them, but they immediately absorb the solution if it contains at the same time peptone and cane-sugar, while they refuse it altogether if it contains strychnine.

A NEW METHOD FOR MILK-ANALYSIS.

M. A. Adams has suggested a new method for the determination of fat and total other solids in milk. Five cubic centimetres of milk are weighed in a tared beaker of about thirty cubic centimetres' capacity: the milk is then sucked up by a tared coil of dry blotting-paper, made by rolling up a strip of "white demy blotting" two and a half inches wide and twenty-two inches long. When all of the milk is absorbed the coil is removed and the beaker again weighed: the paper coil is placed dry end downward on a glass plate, and dried for an hour in a hot-water oven; it is then transferred to an extraction apparatus and exhausted with ether or light petroleum. The fat is dried and weighed, and the solids not fat are estimated by thoroughly drying the exhausted paper coil at 100° and again weighing.

Although it is claimed that the complete and rapid separation of the fat permits this method to give accurate results, it is not probable that the non-fatty substances can be estimated by it with any accuracy; the drying of a paper coil of the size described is too uncertain to permit of trustworthy results.

MICRO-ORGANISMS IN POTABLE WATER.

T. Leoni publishes an account of the results of the gelatin-cultivation method applied to the water of Monaco. As supplied to the city from Mangfall spring, this water contains five micro-organisms to the cubic centimetre. After standing in sterilized vessels for twenty-four hours it contains more than a hundred; in four days the number increases to three hundred and fifteen thousand, and in a month to more than a million; it then diminishes gradually until the end of six months, when only ninety-five remain. In water containing carbon dioxide, whether artificial or natural, the increase of organisms does not take place, and experiments have shown that this result is brought about directly by the carbon dioxide.

P. F. Frankland has made experiments upon the efficacy of various filtering media

for the removal of micro-organisms from water. Some of the water contained fermented urine; some of it was natural potable water.

Green-sand, coke, animal charcoal, and spongy iron were the only substances that wholly removed the micro-organisms, but a month's use destroyed in great measure—and entirely in the case of animal charcoal—this power of removing the organisms.

ON THE RELATIVE VALUE OF CHEMICAL AND BACTERIOLOGICAL EXAMINATION OF POTABLE WATER.

After repeated chemical and bacteriological examinations of potable water, Link has arrived at the conclusion that there is no general relation between the degree of bacterial infection of a water and its chemical characters. He also claims that a bacteriological investigation, based on the too doubtful results of a limited number of determinations of the number of colonies that may be developed, often leads to a conclusion diametrically opposed to that based on chemical analysis, and that a sufficient basis is still wanting for an attempt to make the results of bacteriologic experiment of general value as a criterion for the judgment of a potable water. As hitherto, chemical analysis must lead to a decision.

TYROTOXICON.

Public attention has recently been so repeatedly called to poisoning by milk-products that the method pursued by V. C. Vaughan in the extraction of tyrotoxicon from cheese may not be without interest. The cheese was extracted with water, and the acid aqueous solution was neutralized with sodium hydroxide and then exhausted with ether. The separated ethereal extract was evaporated in the cold, the residue again treated with water, and this solution exhausted with ether. The last ethereal solution is evaporated over sulphuric acid in vacuo, and needle-like crystals of the new substance separate. The crystals have a sharp, burning taste, soon followed by dryness of the throat, oppression, and nausea. In addition to these symptoms, a drop of the liquid from which the crystals had separated produced diarrhœa. The same effects were produced on several individuals. Chemically, the substance does not respond to the tests for the alkaloids; it reduces iodic acid and forms Prussian blue with ferric chloride and potassium ferricyanide.

In order to obtain good crystals the last extraction must be made with pure ether. Tyrotoxicon has a penetrating odor like that of old cheese; it is soluble in water, alcohol, and ether. Sixteen kilogrammes of one poisonous cheese yielded 0.5 gramme of the substance, while from the same quantity of another cheese 0.1 gramme was obtained.

MYALGIA.

Read before the Baltimore Medical Association

BY A. B. ARNOLD, M.D.,

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DURING the months of March and April of this year an unusual number of cases of so-called "muscular rheumatism" came under my notice, which attracted my attention to the subject. This disorder appears to have elicited but little interest among observers, as the literature on the subject is extremely meagre. Probably this apparent neglect is owing to the circumstance that a more accurate discrimination of affections that were formerly classed as "rheumatic" has greatly restricted the use of this term. It is well known that numerous instances of muscular pain are merely the concomitants of various diseases of a definite character. There nevertheless remains a group of myopathic disorders which are mainly distinguished by a painful sensation which patients locate in certain muscles or their fasciæ. The term myalgia is undoubtedly preferable to denote this peculiar muscular pain, as it does not imply a theory; but if the word rheumatic is merely understood to signify the effect of atmospheric influences, which by common consent favors the development of the affection under consideration, there can be little objection to speak of muscular rheumatism.

The essential symptom of myalgia, as already intimated, is the sudden accession of a diffused pain, chiefly referred to some muscle or a group of muscles. When the pain or tenderness is limited in extent and of a more acute character, it is probable that the aponeurosis or tendon of the muscle is mainly affected. Occasionally the pain is of a dull, aching kind; more frequently it is of a tearing, dragging nature. It is started

and aggravated on movement; but even during perfect rest there remains a feeling of soreness and tiredness resembling the peculiar sensation of an over-fatigued limb. Deep pressure also causes pain. The patient seeks to assume a certain position of the body which he finds to give him some relief. No outward change of the painful muscle is visible, fever is rarely present, and no sequelæ occur.

In reference to the etiology of muscular rheumatism, it must be admitted that an attack can be frequently traced to the immediate effect of exposure, or what is commonly understood by the expression of "catching cold." I am inclined to believe that patients give a true explanation of the causation of the muscular pain when they attribute it to the direct influence of a draught of cold and moist air during the overheated state of the body resulting from muscular exertion. A traumatic cause, as a strain, in stooping or lifting a heavy substance, rather than exposure, is the etiological factor in some cases, and even the rupture of muscular fibres may sometimes be suspected.

Among the varieties of myalgia none is more painful and distressing than the implication of the occipito-frontalis muscle. The whole scalp may be so exceedingly tender that the patient dreads the use of the comb or brush. The peculiarity of this form of headache consists of a steady, intolerable pain, which is not confined to a particular region of the head. Frequently the pain extends to the temporal muscles or radiates to the nape of the neck and the shoulders. Patients often complain that they do not know where to lay the head when trying to go to sleep. It is well to remember that a similar pain of the head attended by insomnia occurs in syphilitic periostitis of the cranium. The violent pain of the head dependent on cerebral tumor or abscess will not be easily mistaken for rheumatic headache, in view of the fact that the pain resulting from intracranial disease is far more intense and persistent, and is generally limited to a particular spot.

Much relief will be obtained in the mild form of rheumatic headache from rest and covering the head and neck with a thick woollen shawl. A full dose of Dover's powder, taken in the evening with hot lemonade, usually secures a quiet night. Great violence of the pain may require the prompt action of a hypodermic of morphia. When the headache does not yield to these measures or has a tendency to become chronic, good results may be expected from blistering the nape of the neck or the parts behind each ear.

In ordinary wry-neck, it is mainly the sterno-cleido-mastoides which is affected. The face is turned to the sound side. The affected muscle in this variety of torticollis is often found in a spasmodic condition, and feels hard to the touch. A similar appearance of the neck is sometimes witnessed in disease of the upper vertebræ due to reflex action. The large majority of cases of rheumatic torticollis readily yield to stimulant liniments. In long-standing cases the deformity is kept up by the persistent spasmodic condition of the muscle. Blistering is occasionally of service, but the application of the galvanic current is more frequently successful.

The term pleurodynia is commonly applied to the rheumatic myalgia affecting the pectoralis major and intercostal muscles from the fifth to the eighth ribs. Much pain and embarrassment in breathing is experienced during forced inspiration. The pain resembles the pleuritic stitch, and for this reason patients allege that they cannot take a full breath. Nervous persons are greatly alarmed when the left side of the chest is the seat of the pain, being apprehensive of an attack of pleurisy or heart-disease. The result of the physical examination of the thoracic viscera will of course remove the doubt.

Pleurodynia is, however, more apt to be mistaken for intercostal neuralgia. The distinction rests upon the circumstance that in the latter affection the pain is limited to the course of the nerve; it is of a paroxysmal and lancinating character, and marked by the existence of punctæ dolorosæ. Sometimes the scapular muscles and those of the back are implicated at the same time.

The pain of pleurodynia is frequently relieved by a large mustard-poultice. I have seen benefit from a liniment composed of the camphorated tincture of soap and veratria, in the proportion of eight grains of the latter to the ounce of the tincture. A hypodermic of morphine can hardly be dispensed with when the pain is severe and greatly interferes with the breathing. The application of wet cups often answers the same purpose.

It is in lumbago that a traumatism rather than the rheumatic element most frequently gives rise to the backache which induces the patient to keep his body in a bent position. The lumbar pain commonly comes on during active exertion involving a strain or stretching of the muscles. Either one side or both sides may be affected. The character of the pain bears a close resemblance to the sacral pain of smallpox. The pain is far less intense in the backache from renal and uterine affections and hemorrhoids. In many cases of lumbago of a recent and mild nature I have observed prompt relief from the popular remedy of passing a hot flat-iron over the protected part. In fact, the application of dry heat is always grateful. A more elegant way of relieving the pain is the stimulation of the electric brush. It frequently acts like a charm. Chronic cases yield sometimes to the persistent use of the galvanic current, which I learned from actual observation. For the purpose of subduing the pain in lumbago at once, nothing can take the place of an injection of morphine.

Is is difficult to determine to which category of painful sensations the so-called "growing pains" of children and the "schoolmate's pain" should be referred. Suppose it be admitted that these vague morbid feelings in the majority of instances depend on some recognizable cause, there are, nevertheless, cases met with in which the subjective symptom of muscular pain appears to constitute the sole ailment. Perhaps this variety of pain belongs to the category of "trunk pain" to which Dr. Inman has drawn attention. I have observed in children such actual suffering from pains in the back, chest, and the abdominal walls that I was unwilling to believe them to be a sham. I rather was inclined to ascribe them to the deleterious influence of the unnatural sedentary life and constrained position of the body to which children are condemned while attending school. A release for a reasonable time from school should certainly be advised. I have seen much benefit in these cases from general faradization according to the method of Drs. Beard and Rockwell.

I am not sure whether the general pain, or, more properly, the sensation of uneasiness felt in the limbs and back, which often succeeds a chill, but does not develop any serious symptoms, should be classed with muscular rheumatism. It is now the fashion to refer this condition to a malarial influence. I have never failed to overcome this ephemeral disorder by diaphoretics assisted by a dose of Dover's powder.

A word in regard to the pathology of myalgia. Among the morbid changes that may possibly underlie this affection, the existence of muscular inflammation suggests itself. But, with the exception of the pain and tenderness, there are no symptoms which would indicate the occurrence of myositis. As the pain can only be due to the implication of sensitive nerves, an irritative condition of nerve-fibres distributed to the muscular structure may be supposed to exist. Concerning the character of the pathological alteration which causes the morbid sensibility of the intra-muscular nerves in myalgia, it is as difficult to determine as that which obtains in neuralgic pain.

TRANSLATIONS.

MUMMIFICATION OF A CORPSE BY MICRO-ORGANISMS.—At a recent meeting of the Académie de Médecine, M. Brouardel made known some curious and interesting facts concerning the dead body of a girl 22 years old, which was discovered in a cellar under a heap of straw. The body had been there about a year, and was in a perfect state of mummification; putrefaction had not set in. One of the limbs was shown at the meeting: it was thoroughly dissected; the tissues were hardened, and when struck sonorous. M. Audouard had attributed this mummification to the dryness of the soil on which the dead body had been placed, but M. Mégnin found it to be due to five different species of acari, which deposited the débris of the envelopes of their eggs and carapaces in the dust that was found among the dried tissues of the body. Bergeret, in 1855, had proved that by studying the generations of acari which have been at work on a dead body the date of death can be estimated. From the examination of the débris of acari in a child's corpse, he ascertained that death had occurred two years previously. A judicial inquiry confirmed the statement.

M. Brouardel described the order of succession of the different species of acari, when a dead body is exposed to the air, also the work of destruction accomplished by each separate species. It is first invaded by the *asticots* (larvæ of flies), and then by the *dermites*,—one species absorbing the fluids, another consuming the fatty acids. Finally come the *anthrenæ* and the *acari* (tyroglyphus), which consume the soft parts. When a species has finished its work it dies on the dead body, or is devoured by a succeeding species, which in its turn sets to work. Each generation in summer-time lives from six weeks to two months. By taking cognizance of this fact in the recent Villemomble murder, M. Mégnin established with precision the exact date of the burial of the human remains discovered in the garden. In the neighborhood of the body a particular kind of ant was observed which is never found in soil recently disturbed; also the débris of acari, which also furnished a chronological indication; a portion of a bulb of a lily furnished further proof that two years must have elapsed in order that the bulb should undergo the alterations it presented. M. Brouardel dwelt on the value of these entomological data in reference to medical jurisprudence.—*Revue de Thérapeutique*, No. 13.

Antiseptic Surgery on the Field of Battle.—Among the minor contributions of modern surgery to the needs of daily life the value of which can scarcely be estimated at present, is the small package of antiseptic dressings which soldiers are required to carry with them for immediate application to wounds upon the field. This appears to have been first suggested by Dr. L. V. Lesser, of Leipsic ("Ein Kriegschirurgischer Vorschlag," *Centralblatt für Chirurgie*, 1884), by whom it was also brought to the attention of the Thirteenth Congress of the German Surgical Association at Berlin.

More recently the same ideas were advanced by Dr. Von Heydenreich, who advocated the use of corrosive sublimate instead of iodoform and carbolic acid. Lesser (*Centralblatt für Chirurgie*, No. 27, 1886) defends his former views, and condemns the use of the sublimate powder (sublimate, five milligrammes; sugar, five grammes), because of the uncertainty of the dosage (both on account of its gradual conversion into calomel by the sugar and in its relation to the extent of the wound and amount of blood or secretions present), and also for its highly poisonous properties.

The preference of Lesser is for an antiseptic powder composed of iodoform mixed with boric acid. In his polyclinic during the last two years he has practised this method of treatment in two hundred and seventeen cases of recent wounds, with complete satisfaction. The surrounding skin is first washed with ether or oil of turpentine, then the wound is disinfected with a five-per-cent. carbolized solution, dusted with iodoform, a compress of iodoform-gauze, or simply an iodoform bandage, is applied; and it is finally enveloped in wadding held in place by a roller bandage. This dressing usually suffices, the necessary surgical operations always excepted.

Irrigation of wounds with sublimate solution may have a place in field-hospitals, but is usually impracticable for the soldier in the field, and, moreover, is less in use at present than formerly. Small compresses of wadding wet with a three- to five-per-cent. solution of carbolic acid (kept in glass tubes) might be used to clean the wound so as completely to take the place of irrigation. For convenience, cheapness, and efficiency, the dressings of iodoform and carbolic acid are decidedly preferable to all others for use upon the field.

Vinegar-Applications for Diphtheritic Deposits.—Used as a gargle diluted with an equal quantity of water, or as a spray still further diluted, vinegar is pronounced by Engelmann to be an admirable remedy for the throat-affection in diphtheria, being more agreeable and less irritating than carbolic acid, and at the same time a more reliable germicide than the ordinary five-per-cent. solution of that drug.—*Centralblatt für Klin. Med.*

Chronic Eczema of Genitals and Anus.—Vidal uses the following formula:

℞ Ol. cadini, 5 parts;
Glycerit. amyli, 30 parts. M.

gradually increasing the strength until it contains fifty per cent. of oil of cade. Lotions of solutions of chloral hydrate (two and a half to five per cent.) or chloroform (one per cent.) will relieve itching.

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EDITORIAL.

DISINFECTION AND DISINFECTANTS.

THE establishment of the germ-theory of disease upon the solid foundations it occupies to-day, through the labors of Pasteur, Davaine, Chanreau, Koch, Sternberg, Eberth, Gaffky, Löffler, and others, has to a great extent modified our views upon disinfectants and disinfection. Until recently the terms disinfectant, antiseptic, and deodorizer were used synonymously. Hence the older—and indeed much of the later—literature upon this subject is confusing to the physician who seeks for an intelligent account of the objects and methods of disinfection and of the agents by which disinfection is accomplished.

It is now known that all fermentation, decay, and putrefaction are due to the presence and action of minute organisms belonging to the vegetable kingdom.

An agent which arrests the development of these organisms, and thus prevents decay or putrefaction, is an antiseptic. The addition of common salt, nitrate of potash, alcohol, or sugar exercises such restraining influence, and in our domestic economy these agents are frequently used to prevent putrefactive change. If, however, the putrefactive process has once begun, the addition of the substances mentioned fails to arrest it: they do not exercise a destructive effect upon the organisms. If we destroy the latter, which we can do by heat (boiling) or bichloride of mercury, we arrest the putrefaction. This is disinfection, and the agent by which it is brought about is a disinfectant.

A deodorizer is not necessarily either an antiseptic or a disinfectant. The deodorant effect may be simply a chemical decomposition of the volatile odorous particles. Antiseptics and disinfectants may, however, in certain cases act as deodorizers by virtue of their power of preventing decomposition and the consequent formation of the gaseous effluvia attending this process.

In view of the general acceptance of the doctrine that all infectious diseases are due to the activity of micro-organisms or germs, a disinfectant has by some been considered as equivalent with germicide; but, inasmuch as this has not been proved, it is better to define a disinfectant as *an agent which is capable of destroying the infective power of infectious material.** This definition does not commit us to any theory as to the nature of such infectious material.

Clearly, the only way in which the efficiency of a disinfectant can be absolutely demonstrated is by testing it upon known infectious material. If any substance of known infective power is exposed to the action of an agent and loses its infectivity, the agent so tested is a disinfectant. The pathologist has at his command such infective material in vaccine virus, anthrax, and tubercle-bacilli, the micrococci of erysipelas, and various septicæmic processes, and tests have of late years been frequently made with these materials and their results placed upon record.

Although Dougall, Hoppe-Seyler, Baxter, Braidwood and Vacher, Davaine, and others had made praiseworthy attempts to fix the disinfectant value of certain agents by the biological test, the work of Sternberg,† Koch,‡ Wolffhügel,§ Fischer and Proskauer,‖ Parsons,¶ and the Committee

* Report of the Committee on Disinfectants of the American Public Health Association, 1885, p. xi.

† Report of the National Board of Health, 1880, p. 318, and American Journal of the Medical Sciences, April, 1885.

‡ Mitth. a. d. Kais. Gesundheitsamte, Bd. i.

§ Ibid.

‖ Ibid., Bd. ii.

¶ Fourteenth Annual Report of the Local Government Board, 1884-85.

on Disinfectants of the American Public Health Association * has introduced scientific accuracy into this study, and shown the untrustworthiness of most of the older observations upon this subject.

From the experiments hitherto made, it appears that infectious material the infectivity of which is due to the presence of micro-organisms may be divided into two classes, depending upon whether the reproduction of the organisms is due to simple fission or to the formation of spores. Organisms which increase through spore-formation,† as the bacilli of anthrax or tuberculosis, require a much more energetic action for their destruction than the simpler organisms, micrococci for example. Erysipelas, cholera, purulent infective processes, and perhaps smallpox, scarlet fever, measles, and similar diseases, may be regarded as due to sporeless organisms, and less active disinfectants will be required to destroy their infectivity than the former class.

The report of the Committee on Disinfectants above referred to, and the Lomb prize essay of Dr. G. M. Sternberg,‡ contain a careful summary of nearly all the experimental work of value recently done. From these publications we learn that the following are the most efficient disinfectants at our command, being capable of destroying all known disease-germs, including their spores.

1. Complete destruction by fire.

2. Boiling in water for half an hour, or steam under a pressure of twenty-five pounds to the square inch for ten minutes.

3. Solution of mercuric bichloride, one to five hundred.§

4. Solution of chloride of lime (chlorinated lime, bleaching powder), one to twenty-five.

5. Solution of sulphate of copper, one to twenty.

6. Solution of carbolic acid, one to twenty.

The methods of using these agents cannot be stated here in detail, but some hints as to their employment may be given.

All alvine excreta of cases of typhoid fever, yellow fever, and cholera should be immediately disinfected. The vomited matters in cholera and yellow fever and the sputa of cases of tuberculosis, diphtheria, and scarlet fever should likewise be subjected to the action of a disinfectant. All disinfection must be thorough; partial disinfection is equivalent to no disinfection. As the Committee on Disinfectants expresses it, "There can be no partial disinfection of such [infectious] material: either its infecting power is destroyed or it is not."‖

Alvine discharges should be received in a receptacle containing at least a quart of the disinfectant, in order that any infectious matter contained in the injecta may be immediately rendered innocuous. So, too, sputa or vomited matters should be received in vessels containing a quantity of the disinfecting agent, or immediately covered with the same. Disinfection must not be postponed until the matters have been thrown into a privy or common sewer. It is then in most cases too late to disinfect thoroughly.

Handkerchiefs, napkins, or other articles of linen, wearing-apparel, or bedclothing, when infected, should be immersed in a solution of mercuric bichloride, one to two thousand, and allowed to remain in it for four hours before being sent to the laundry. Articles of slight value should be burned. Mattresses and such other articles as cannot be washed

* Report, 1885.

† It is, of course, well known that the bacilli may also increase by subdivision.

‡ "Disinfection and Individual Prophylaxis against Infectious Diseases." This is probably the most valuable work upon this subject accessible to the profession generally. It can be obtained of the Secretary of the American Public Health Association, Concord, New Hampshire, U.S.A.

§ This should be colored with permanganate of potassium (1 to 500), or sulphate of copper (1 to 125), or by some other stable coloring-matter.

‖ Report of the Committee on Disinfectants, 1885, p. 128.

should be subjected to the action of steam under a pressure of twenty-five pounds.

Furniture, table-service, etc., when infected, should be washed with a solution of mercuric bichloride (one to one thousand), carbolic acid (one to fifty), or chloride of lime (one to one hundred), before being cleansed in clean water.

After a room in which a patient sick with an infectious disease is vacated, it should be thoroughly fumigated with sulphur dioxide. Three pounds of brimstone, broken into small fragments, should be burned for every one thousand cubic feet of space. All crevices should be carefully closed, and the room should not be opened for twenty-four hours. It should then be exposed to a free circulation of air, and afterwards the internal walls, doors, and windows washed with a solution of mercuric bichloride (one to one thousand).

The customary saucer of chloride of lime exposed in a room, or the favorite portière saturated with carbolic acid which health-officers suspend in the door-ways of rooms where infectious diseases are treated, are worse than useless, because they tend to give a false sense of security against the spread of disease.

THE USE OF COCAINE.

HAVING survived the enthusiastic reception by the profession which attended its re-introduction by Koller in 1884, cocaine has about settled down to its legitimate place, which is not an unimportant one, in our therapeutics. It is worthy of note that, although employed in almost every condition possible, and in many cases manifestly improperly both as to the dose and the morbid condition, so few cases of serious toxic symptoms have been reported; and in some of these the hysterical element, or some other hidden cause, may have had more to do with the condition of the patient than the remedy itself. From its general resemblance to caffeine, indeed, its comparative innocuousness in ordinary doses might be inferred.

Schwarzbach (*Australasian Medical Gazette*, January, 1886) reports a case of a lady who had used cocaine solution for pain in the eye due to trichiasis. At the end of the second day of its use she was taken suddenly very ill. She was found tending to stupor, pale, pulse slow although full, and a cold perspiration on her forehead. She was restored by wine and strong coffee, and was all right in a few hours. This is a type of the cases of poisoning, a number of which have appeared in our journals.

Individuals with certain forms of nervous disease seem more susceptible to the influence of cocaine than others. The case of the physician in Chicago who made experiments upon himself and his family with cocaine, and who was afterwards sent to the insane asylum, has been widely published as a result of the abuse of cocaine. It is a specimen of the loose reasoning that is so fatal to therapeutic progress.

With regard to the eye itself the case is different: here experience has demonstrated that bad results may follow as the result of—1, solutions being too strong; 2, too long continued; 3, contaminated by bacteria; and probably, 4, on account of some idiosyncrasy of the patient.

It is possible that the alkaloid as it comes from different laboratories varies in strength, and some specimens have been found contaminated with some other principle which has the power of dilating the pupil and causing dryness of the throat, like atropine. Apart from the use of impure or adulterated cocaine, it has been observed, owing to the contraction of the blood-vessels following the application and consequently reduced nutrition of the anæsthetized parts, that sloughing may follow where cocaine has been freely used; and Pflüger has reported two cases and Bunge six cases of neuro-paralytic keratitis, fol-

lowing the operation of extraction of cataract. In these cases an ointment of cocaine with vaseline had been applied.

Some interesting observations recently made by Dr. C. B. Penrose at the Pennsylvania Hospital, under the direction of Professor Da Costa, direct attention to a new and probably useful property of cocaine.* In some previous researches upon the physiological effects of hypodermic injections of this remedy it had been observed that it seemed to increase the flow of urine.† Further investigation has demonstrated that cocaine possesses a decided diuretic influence, and its applicability to the treatment of dropsy attendant upon a weak heart and certain cases of uræmia with scanty secretion of urine is suggested. The opinion seems well founded that it deserves a trial in these and similar conditions.

THE RIGHTS OF THE CITIZEN AS TO SEWERAGE IN CITIES.

MATTERS affecting the public health are becoming more frequent subjects of litigation with each year, and the rights and duties of municipal authorities and Health Boards are continually demanding determination.

In a case recently tried in Brooklyn it was held that a citizen had a claim against the city for damages resulting from a failure to construct proper sewers, and this was decided to be the case notwithstanding the general rule that cities are not responsible for the failure of ordinances to accomplish what was intended in the way of public improvement. The city of Brooklyn, it seems, was empowered to create a general system of drainage, and in one part of the city in 1868 laid out a large sewer into which lateral sewers were to be built as the wants of the neighborhood demanded. Within a short time after the completion of the main sewer, actual use demonstrated that it had not sufficient capacity to carry off the accumulations of water and matter turned into it, and the result was that at times of heavy rain and melting snow the collected sewage, being obstructed in its flow, was forced through the man-holes and inundated the district in which the plaintiff resided, inflicting serious injury to his property.

The inundations commenced nearly ten years previous to the trial, and had increased in frequency and severity as new lateral sewers were from time to time built and connected with the main trunk, until finally they occurred as often as eight or ten times a year, and became well known to the officers of the corporation. Notwithstanding this fact, the corporation continued to build and attach lateral sewers to the main trunk, and increased from year to year the evil produced by the defects of the original plan. Under these circumstances the plaintiff brought his suit for damages against the city, and the court held that it could not plead any exemption from liability on the ground that the sewers were intended for the public benefit, but must pay when it was proved that harm had resulted from its own neglect in not providing proper sewers.

In Baltimore recently a somewhat similar suit was tried, and resulted in establishing the liability of the city for harm resulting from neglect of the sewers.

The city authorities converted a running stream into a sewer by covering it over and appointing persons to keep it in repair. The question here seemed to be whether the owners of adjoining property had parted with ownership of the bed of the stream to the city, but the court decided that this point was not material, as the city was as much liable for harm from a sewer which it owned only in part as if it owned it entirely.

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* Medical News, June 19, 1886.

† Transactions of the College of Physicians of Philadelphia, 1884.

LEADING ARTICLES.

THE PRESENT STATE OF THE DOCTRINE OF PARASITISM IN DERMATOLOGY.

THE current doctrines of pathology attribute to minute organisms in the blood or tissues the origin of a large number of morbid conditions. The general belief of the medical profession, whether correct or not, seems to be in favor of the theory which ascribes to parasitic organisms of a vegetable nature the origin of the specific fevers, tuberculosis, pneumonia, septicæmia, and various local infective processes.

It would be strange if dermatologists failed to appreciate the etiological importance of bacteria and other minute organisms in the production of skin-diseases, especially since the first definite support which the parasitic theory of disease received came from the domain of dermal pathology.

Vegetable parasites producing skin-diseases may be divided into two classes,—those which produce only a superficial or local irritative effect, and those which produce, in addition, locally, destruction of tissue or general infection of the system.

It will be shown that the former belong to that class of organisms known as fungi, while the latter are included among the schizomycetes, or fission-fungi, or, briefly, *bacteria.*

I.—VEGETABLE PARASITES PRODUCING SUPERFICIAL OR LOCAL IRRITATIVE EFFECTS.

The commonly recognized parasitic skin-diseases are favus, ringworm, and chloasma. They are generally grouped together under the generic term *tinea*, first applied to them by the late Dr. Tilbury Fox, and the individual diseases are technically known as tinea favosa (favus), tinea trichophytina (ringworm), and tinea versicolor (chloasma).

The organisms producing these diseases belong to the class fungi, and are easily recognizable under a comparatively low power of the microscope (three hundred to five hundred diameters).

Most pathologists, following the authority of the leading botanists in this field, regard the different organisms as separate species, although some dermatologists and pathologists—among whom are I. E. Atkinson, Neumann, Grawitz, and others—believe that the parasitic fungi found in skin-diseases are merely stages of development of one or other of the common mould fungi so widely distributed in nature.

The conclusions of these investigators have, however, not been generally accepted, although the view defended by them has received support from an observation of Hebra, who produced a mixed eruption resembling ringworm and favus by the prolonged application of moist, mouldy compresses to the skin.

The parasite of favus—achorion Schoenleinii—was discovered in the characteristic crusts of the disease in 1839 by Schoenlein, and fully described by Gruby in 1841. In the following year, Remak proved the etiological relation of the fungus by inoculating the disease upon healthy individuals. No one questions at the present day the entire dependence of favus upon the presence of this parasite.

In 1843, Malmsten and Gruby discovered the parasite of ringworm independently of each other. The former gave it the name trichophyton tonsurans, by which it is now known.

Ringworm presents clinical differences as it appears on different portions of the body, and it seems that climatic differences also produce marked changes. Thus, it is generally believed that the various dermatophytic diseases described by English observers in the East under the names of Burmese ringworm, Malabar itch, Tokelau ringworm, tinea imbricata, etc., are merely varieties of the disease produced by the same fungus under different conditions of growth. It is proper to mention, however, that this view is combated by some,* who assert that the parasites in certain of these affections belong to different species from the trichophyton tonsurans.

The remarkable clinical differences exhibited between ordinary ringworm of the beard and parasitic sycosis led many to question the identity of the fungus in the two affections. But the elaborate researches of Dr. I. E. Atkinson upon the nature and clinical relations of kerion showed conclusively that the trichophyton fungus was quite capable of producing as intense irritation as was observed in parasitic sycosis. There is no longer any question of the

* Manson, on Tinea Imbricata, in Customs Medical Reports, No. 14.

close etiological relationship of ringworm and the latter disease.

When the trichophyton fungus invades the skin of the perineum, scrotum, and inner surfaces of the thighs, it produces an affection differing considerably from ringworm on other parts of the body. The almost constant moisture of the parts and the friction of the opposing surfaces of the skin cause an eczematous eruption, which complicates the parasitic affection. The decidedly eczematous character of the disease in nearly all cases, combined with its sharply-defined borders, induced Hebra to name it eczema marginatum. Burqhardt, however, in 1859 discovered a microscopic organism in the epithelial layer of the affected skin. This parasite, which is much smaller than the ringworm parasite, Von Bärensprung named microsporon minutissimum, and to the disease he gave the name *erythrasma*. Köbner, Pick, and Kaposi have, however, demonstrated the identity of the fungus in this disease with that of ringworm.

Recently Dr. Riehl* returns to the names given by Von Bärensprung to the disease and its causative parasite; but Bizzozero, in a paper on the micro-organisms normally found upon the human skin,† states that a fungus very much resembling the microsporon minutissimum is found abundantly in the preputial smegma and the parts with which the penis normally comes in constant contact,—*i.e.*, the scrotum and inner surfaces of the upper part of the thighs. He thinks this fungus has no pathogenetic significance. The view that crural ringworm is merely a variety of ordinary ringworm and dependent upon the trichophyton fungus, seems to be now definitely established.

The trichophyton fungus, as well as that of favus, may attack the nails and produce a destructive effect upon these organs.

Chloasma, or so-called "liver-spots," is still regarded by many as a disease of internal origin, and often diagnosticated and treated as a manifestation of syphilis. Its parasitic nature was, however, established as early as 1846 by Eichstedt, who gave to the parasite found among the branny scales scraped from the pigmented patches the name microsporon furfur.

Schwartze,‡ Wreden,§ and Steudener‖ have called attention to a form of chronic external otitis depending upon the presence of fungi in the external auditory meatus. The membrana tympani is covered with a whitish deposit, which rapidly develops into a coherent pseudo-membrane. Upon removal of this the surface of the drum-membrane appears dark red, swollen, and denuded of epithelium. The parasites found are different varieties of aspergillus, especially Aspergillus nigricans and A. flavescens. Mucor is also sometimes present. Wreden has named the affection myringomycosis aspergillina. Koch has recently shown that A. flavescens may cause a fatal infectious disease in rabbits when injected into the circulation.

To these diseases, which must unquestionably be regarded as parasitic, may be added several others which present many evidences of a parasitic nature, but in which the constant presence of the organism has not been incontestably established. One of these diseases is a curious affection prevailing in Mexico and Central and South America, where it is known as mal de los pintos, mal pintado, or tinna carate. It consists of discolorations of the skin, accompanied by furfuraceous desquamation and itching,—in short, the symptoms of tinea versicolor. The coloration of the affected parts is varied: black, gray, blue, red, and dead-white. The disease is chronic, does not affect the general health, and is contagious. Gastambide¶ gives the fullest account of it. He claims to have found a micro-organism consisting of spherical or oval bodies lodged between the deeper cells of the epidermis. Mycelial tubes were also found. The affection occurs especially among the poorer classes, where cleanliness is neglected.

The late Dr. Tilbury Fox first described an acute bullous eruption, mostly occurring in children, resembling in some respects pemphigus, but distinctly contagious. Some of the recent German authors, as Geber, Lang, and Weyl, regard the disease as merely a vesicular or bullous form of ringworm. But this view is not accepted by English or American dermatologists. De Wèvre describes** a fungus found in the base of the blebs. The mycelium, which is abundant, has a diameter of .003 m., and is filled with spores. On the other

* Wiener Med. Wochenschrift, Nos. 41 and 42, 1884.
† Virchow's Archiv, xcviii. p. 441.
‡ Arch. f. Ohrenheilk., Bd. II. p. 5.
§ Ibid., Bd. III. p. 1. ‖ Ibid., Bd. V. p. 163.

¶ Presse Méd. Belge, 1881.
** Arch. de Méd. et de Pharm. Militaires, September 16, 1885; Journ. Cut. and Ven. Dis., February, 1886.

hand, Crocker,* O. Simon, Colrat,† Pulvermacher,‡ and Pogge§ have described micrococci found in the fluid of the bullæ. The latter and Colrat succeeded in cultivating the organism in bouillon, on nutritive gelatin and potatoes. Inoculations with the pure cultures produced blebs resembling impetigo contagiosa. These results would indicate that the parasite producing this disease has been discovered; but further observations are needed to establish positively its etiological relation.

Ceci,‖ Barthélemy,¶ and J. Wickham Legg** have announced the discovery of micrococci in the blood in cases of purpura hæmorrhagica. On the other hand, Watson Cheyne†† found bacilli in the affected tissues in several cases. In two fatal cases Legg failed to find organisms either in the blood or the tissues. The evidence in favor of regarding purpura as a bacterial disease seems to be insufficient.

Alopecia areata has frequently been claimed as a parasitic disease. The late Dr. Tilbury Fox was an ardent supporter of this view. Recently Von Sehlen‡‡ found micrococci attached to the hairs in cases of this affection. Pure cultures of this micrococcus inoculated upon young dogs and white rats produced scaling and loosening of the hairs in the follicles. The same cocci were found in the hair-follicles of the inoculated animals, and could be further cultivated upon peptone agar-agar. Corrosive sublimate (parasiticide) lotions cured the disease. A series of experiments by Max Joseph,§§ very lately made, however, seem to show conclusively the trophoneurotic nature of this affection. Neurectomy of the second cervical nerve in cats and rabbits was followed by falling of the hairs in a manner strongly resembling alopecia areata.

The furfuraceous desquamation of the scalp accompanied by falling out of the hair, commonly known as dandruff, and which most American dermatologists attribute to seborrhœa, is considered by several European observers to be due to a parasite. Malassez nearly ten years ago described the organism found by him in cases of the affection. Lassar and Bishop‖‖ claimed to have demonstrated the contagious nature of the disease by mixing the finely-cut hairs from a case with vaseline, and rubbing the ointment so obtained into the skin of rabbits and guinea-pigs. In three to four weeks the spots so treated had become bald. Michelson, however, produced the same effect by the inunction of a healthy rabbit with a mixture of vaseline and rancid olive oil.¶¶ More recently, Oudemans and Pekelharing claim to have discovered a fungus in pityriasis capitis. This they have named saccharomyces capillitii.***

Although the evidence is too meagre to justify the acceptance of the parasitic nature of this common and annoying affection of the scalp, some support is lent to this view by the results of a parasiticide method of treatment. The use of carbolic acid, or salicylic acid and sulphur ointments, with careful attention to cleanliness of the scalp, will often result in a cure.

Psoriasis, in its mode of local progression, possesses some of the characters of a parasitic disease. E. Lang††† first described a fungus which he declares to be constantly present at the base of the squamous accumulations in this disease. As figured by this author, it bears strong resemblance to a luxuriant culture of oidium lactis. H. Schulze in a monograph‡‡‡ confirms the discovery of Lang, and, consistently with the view of its parasitic nature, treats psoriasis with parasiticides. He claims not merely positive but permanent cures from his method of treatment. The remedies used are warm baths and inunction of Goa-powder (chrysarobin) ointment. The latest defender of the parasitic nature of this disease is A. Wolff,§§§ who also finds the fungus termed by Lang epidermophyton in all cases. This last author believes that the parasite enters through the circulation, and that when arrested in the cutaneous capillaries the irritation it produces causes psoriatic lesions!

In a disease apparently closely allied

* Lancet, 1881.
† Rev. de Méd., No. 13, 1884.
‡ Monatsh. f. Prakt. Dermatologie, No. 2, 1885.
§ Corr. Bl. d. Aerztevereins d. Reg. Bez. Stralsund, No. 22, 1885.
‖ Arch. f. Exp. Pathol., 1881, p. 641.
¶ Arch. Gén. de Méd., 1882, vol. ii.
** Trans. Pathol. Soc. London, 1885, p. 487.
†† Ibid., 1884, p. 412.
‡‡ Virchow's Archiv, xcix. p. 327.
§§ Centralblatt f. d. Med. Wissenschaften, No. 11, 1886.

‖‖ Monatshefte f. Prakt. Dermatologie, Bd. I., 1882.
¶¶ Anomalien des Haarwachsthums, in V. Ziemssen's Handbuch d. Hautkr., II. Theil, p. 92.
*** Quoted in Ctbl. f. d. Med. Wiss., No. 6, 1886.
††† Ueber Psoriasis. Volkmann's Samml. Klin. Vorträge, No. 208, 1881.
‡‡‡ Ueber Psoriasis und deren Behandlung, 1882; Monatsh. f. Prakt. Dermatol., September, 1882.
§§§ Viertelj. f. Dermatol. u. Syph., 1884, p. 337.

clinically to psoriasis,—namely, lichen ruber,—Lassar* claims to have found micro-organisms in great numbers in the lymph-channels of the papular elevations. No confirmatory observations are on record.

II.—PARASITES WHICH PRODUCE LOCAL DESTRUCTION OF TISSUE.

Mycetoma, or madura foot, is a disease prevalent in the East Indies, especially among the natives. The foot is generally affected, although it is said that the hand or shoulder may likewise be the seat of the disease. The affected member becomes swollen, misshapen, perforated by sinuses, and the tissues greatly disorganized. Dr. H. Vandyke Carter, who has investigated the disease very thoroughly, has found a fungus which has been named, in compliment to the discoverer, chionyphe Carteri. The parasitic nature of the disease is not accepted by all pathologists, although it would seem to be most rationally accounted for on this view. Two cases have been reported in this country, by Kemper† and Hyde.‡ In the latter case the surface was thoroughly scraped with the curette and dressed with saturated solution of boracic acid, resulting in cure. In India, advanced cases require amputation of the limb.

Lupus is believed by many pathologists and dermatologists to be simply a form of tuberculosis of the skin. Tubercle-bacilli have been found in lupous tissues by Koch, Doutrelepont, and Neisser. These observers have also succeeded in producing tuberculosis in animals by the inoculation of lupous material. In the greater number of observations, however, no bacilli were found. Kaposi denies on clinical grounds the identity of the two affections. Morison,§ who has recently investigated the subject in the course of a thorough microscopical examination of lupous tissue, is non-committal. Neisser‖ thinks the parasitic theory should be accepted, although it is not positively established. But, in view of the great difference between the clinical history of lupus and that of tuberculosis, the writer thinks it would be premature to regard the former as identical with the latter. The microscopic evidence is insufficient to stamp it as a parasitic disease.

It must be admitted, however, that recent clinical experience with parasiticides in the treatment of lupus¶ is rather in favor of its parasitic nature.

Bacilli have been found by Frisch, Köbner, Cornil and Alvarez, Payne,** Janovsky,†† and others in the tissues, lymph-spaces, and blood-vessels of the affected part in rhinoscleroma. This is a rare disease in Europe, and, so far as the writer is aware, no cases have been reported in this country. It is said to be comparatively common in Central America.

Nearly twenty years ago, Dr. Edward Wigglesworth, of Boston, proved by inoculation-experiments upon himself that the pus of acne pustules is infective. Kaposi and Lannelongue have also shown that the pus from abscesses, boils, and pustules is inoculable. Hüter and Startin expressed the opinion that furunculosis was a parasitic affection long before micro-organisms were demonstrated in pus. Pasteur, in 1880, described an organism in pus, naming it torula pyogenica. Ogston, Cheyne, Bergeron, and Sternberg‡‡ have also studied the micrococci found in the pus of acute abscesses. Pus from so-called "cold" abscesses does not contain any micrococci. Ogston injected pus containing micrococci into animals, and found it infectious in all cases, producing symptoms of septic poisoning. Pus from cold abscesses or pus in which the micrococci had been killed by a germicide failed to produce any symptoms of infection when injected.

Recently several forms of micrococci have been isolated in pus; but they seem to have equal infective powers. Garré experimented with the micro-organisms found in the pus of acute osteomyelitis and acute cellulitis. He found, on inoculating a pure culture into the skin of the finger, a panaritium resulting. Rubbed into the unbroken skin of the forearm, the culture-mass produced a carbuncle.§§

J. A. Ruijs‖‖ determined that the inoculation of sterilized croton-oil, turpentine, or petroleum into the anterior chamber of the eye of rabbits produced fibrinous inflammation, but no pus. When pure cultures of the micrococci of pus were inoc-

* Deutsche Med. Wochenschrift, No. 32, 1885.
† American Practitioner, September, 1876.
‡ Diseases of the Skin, 1883, p. 423.
§ Amer. Journ. Med. Sci., 1884.
‖ V. Ziemssen's Handbuch d. Hautkrankheiten, I. Theil.

¶ J. C. White, Trans. Amer. Dermatological Association, 1885.
** Trans. Lond. Pathol. Soc., 1885.
†† Wiener Med. Presse, Nos. 13 and 14, 1886.
‡‡ Bacteria. Second Edition. 1884.
§§ Fortschritte d. Medicin, No. 6, 1885.
‖‖ Deutsche Med. Wochenschr., No. 48, 1885.

ulated, however, purulent inflammation with destruction of the eye followed. He consequently lays down the proposition, "No suppuration without micro-oganisms," and Sternberg, who is known as an extremely conservative observer, says, after a review of the subject, that there is strong evidence in favor of the view that the formation of acute abscess is due to the presence of the organisms found in pus. The inoculation-experiments of Wigglesworth, Lannelongue,* and Garré point to the conclusion that all pus from furuncles, pustules, or carbuncles is infectious.

III.—PARASITES PRODUCING LOCAL DESTRUCTION OF TISSUE, WITH GENERAL INFECTION OF THE SYSTEM.

Scarcely any one doubts the contagious nature of erysipelas at the present day. The frequent examples of direct communication of this disease which come under the observation of most surgeons have long settled this point. Since Hüter, in 1869, first observed micro-organisms in erysipelatous inflammation, numerous investigators, among whom Orth, Nepveu, Lukomsky, Koch, and Fehleisen are the most prominent, have demonstrated the constancy of the presence of micrococci in this disease. The organisms are found especially in the œdematous infiltrations, and in the lymph-channels of parts attacked by erysipelatous inflammation. Orth, Koch, Tillmanns, and Fehleisen have frequently communicated the disease to man and the lower animals by inoculations of pure cultures of the micrococcus. A recent Italian experimenter, Dr. Biondi, states that the micro-organism of Fehleisen may communicate not only erysipelas, but puerperal metritis and phlegmonous inflammation as well.† Gusserow, however, has lately pointed out ‡ that, clinically, erysipelas and puerperal septic processes are entirely distinct. The observations of Biondi are so contrary to those of other investigators that they cannot be accepted without confirmation.

Malignant pustule is the cutaneous manifestation of infective anthrax in man. The bacillus anthracis is found in the pus and inflamed tissues, and if general infection follows, this micro-organism is also found in the blood and internal organs. The bacterial nature of this disease is firmly established.

In 1874, Armauer Hansen § discovered small rod-like bodies, recognized as bacilli, permeating the cells of leprous tubercles. This observation of Hansen seems to have attracted but little attention until, in 1879, Neisser published ‖ the results of an examination of a large number of specimens, in all of which the organisms described by Hansen were found. Since that time the question has been studied by a number of observers, prominent among whom are Cornil and Suchard,¶ Köbner,** I. E. Atkinson and Berman,†† J. C. White,‡‡ Unna,§§ Touton,|||| and P. Guttmann.¶¶ The evidence seems to be overwhelmingly in favor of the bacillary nature of the disease. Köbner, Neisser, Damsch,*** and Melcher and Ortmann ††† have made inoculations with leprous material upon animals (cats, dogs, and rabbits), but did not produce any disease which could confidently be pronounced leprosy. A physician resident in Mitylene, the ancient Lesbos, in the Greek Archipelago, has even inoculated two children with pus from a leprous tubercle, but happily without producing the disease.‡‡‡

Neisser and other observers have nearly always found the bacilli within the large "lepra-cells" in the leprous infiltrations of the skin and mucous membranes. The bacilli have also been found enclosed in cells in the epiglottis and thyroid cartilage, the cornea, the testicle, the liver, the spleen, and the peripheral nerves.

Recently Unna has asserted that the bacilli are not contained within the cells, but occur free in the tissues. Touton, Neisser, and Hansen in later studies dispute this, and show that the view first stated is correct.

Verrugas is an endemic infectious fever accompanied by a peculiar eruption of the skin. The disease is limited to certain high valleys in the Peruvian Andes between nine and sixteen degrees south latitude. It is sometimes imported into the cities on the coast. Thus, Medical-In-

* Quoted by Gingeot, Bull. Gén. de Thérap., 1885.
† La Riforma Medica, No. 3, 1886.
‡ Archiv f. Gynäk., xxv. p. 169.
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§ Norsk Magazin for Lægevidenskaben, 1874.
‖ Bresl. Chir. Zeitschr., Nos. 20, 21, 1879.
¶ Annal. de Dermatol., 1881. ** Virchow's Archiv, 1882.
†† Trans. Amer. Derm. Assoc'n., 1881; Arch. of Med., October, 1881.
‡‡ Amer. Jour. Med. Sci., October, 1882.
§§ Deutsche Med. Wochenschr., February 25, 1886.
|||| Fortschritte d. Medicin, No. 2, 1886.
¶¶ Berl. Klin. Wochenschr., No. 6, 1885.
*** Virchow's Arch., Bd. xcii. p. 20.
††† Berl. Klin. Wochenschr., No. 13, 1885.
‡‡‡ Hirsch, Hist. Geogr. Pathologie, Bd. ii. p. 32.

spector John M. Browne, United States Navy, who has written a very clear account of the disease from personal observation,* saw a case in Lima in the person of a little girl who had remained in the infected locality only two days, and refers to another which developed in Callao five months after the patient had spent one day in the verrugas country. The disease has also been observed in the lower animals. Dr. Browne gives the following description of the clinical history of the disease. "The period of incubation is from three weeks to one year; duration from a few weeks to one or two years. . . . The disease commences with a decided febrile attack, often mistaken for the access of the local intermittent, and in every case the paroxysm is accompanied by osteocopic or rheumatic pains. The fever may be present every day for weeks, but disappears at the period of eruption; until then the pains and swellings of the bones and fibrous and muscular systems exist with greater or less persistency in any part of the body, shifting in character and worse at night. When the eruption does not immediately follow the disappearance of the fever, the pains, often attended with spasmodic contractions of the fingers and toes, may continue for months, with in other respects ordinary health, suffering at night, with a sense of stiffness and soreness in the muscles during the day, when comparative comfort is present.

"Succeeding this indefinite period of fever or its absence follows the eruptive stage. The eruption consists of little isolated points, purplish red, usually acuminated, which delay not in becoming red vesicles or tubercular fungoid growths of all dimensions from the size of a pea to that of a medium-sized orange. They invade any portion of the surface, having preference for the head, face, and extremities, especially the palms and soles; also the eye, nose, and ear; and apparently affect the entire thickness of the skin. These growths are soft, vascular, and at first have a uniform surface, but ultimately a scab forms here and there, the covering becomes attenuated, the slightest friction excoriates, and veritable hemorrhages occur."

The mortality of the disease among the whites is very great, the death-rate during its epidemic prevalence reaching forty per cent. The average death-rate is twelve to sixteen per cent.

V. Izquierdo† has investigated the pathology of verrugas. He states that the tubercular growths are new formations of connective tissue, resembling in structure sarcomatous growths. In the nodules micrococci were found in the blood-vessels and packed between the cells, but not invading the latter. They are sometimes so numerous in the capillaries as to occlude them. Izquierdo believes the micro-organisms circulate in the blood, and cause the development of the growths by irritation of the connective tissue.

As bearing somewhat on this question, it may be stated that Rindfleisch claims to have discovered micrococci in the tumors of multiple sarcoma (Kaposi), mycosis fongöide (Alibert).‡

The contagious nature of glanders has been long recognized. Although Langenbeck, Hallier, Zürn, and Rindfleisch had described bacteria as existing in the blood and pus of the ulcers and abscesses of glanders, it was not until 1882 that the true nature of the disease was elucidated by Löffler and Schültz.§ These observers inoculated sterilized blood-serum of horses and sheep with particles of the nodules from the lungs and spleen of a horse which had been killed on account of glanders. On the third day, minute, transparent drops appeared on the surface of the culture, and on examination showed numerous bacilli similar in size and shape to those found by the same investigators in the diseased tissues themselves. The bacilli were cultivated through four generations in the course of a month, and a healthy horse inoculated with the pure culture. On the second day the horse became feverish, and in a week the clinical picture of glanders was complete. Further inoculations were made upon other of the lower animals, and finally a pure culture (fifth) from a guinea-pig which had been successfully inoculated with a culture of the fourth generation was inoculated into two horses. Both horses died of glanders. These observations have been confirmed by Israel. There can remain no doubt of the bacillar nature of this disease.

* On Verrugas: Medical Essays by Officers of the United States Navy. Washington: published by order of the Navy Department, 1872. P. 3.

† Virchow's Archiv, Bd. xcix. p. 411.
‡ Deutsche Med. Wochenschr., No. 15, 1885.
§ Deutsche Med. Wochenschr., No. 52, 1882.

Dispassionately reviewing the evidence presented in the foregoing, the following skin-diseases may be regarded as demonstrably of parasitic origin: favus, ringworm, chloasma, myringomycosis, onychomycosis, erysipelas, malignant pustule, leprosy, and glanders.

For the remaining diseases which have been considered, the etiological relations of parasitic fungi or bacteria must be regarded as unproved. These diseases are boils, carbuncles, rhinoscleroma, pityriasis capitis, alopecia areata, psoriasis, lichen ruber, impetigo contagiosa, purpura hæmorrhagica, mal de los pintos, mycetoma, lupus, mycosis fongöide, and verrugas. That a parasitic cause may be demonstrated in some of the latter is, however, extremely probable.

GEORGE H. ROHÉ, M.D.

NOTES FROM SPECIAL CORRESPONDENTS.

PARIS.

THE New Hôpital Bichat is a good example of the modern style of construction of such buildings. It is intended to give a maximum of fresh air with a minimum of material. Without doubt, the essential point in a hospital is to have the contained air constantly renewed and purified by a proper system of ventilation. This may be called the efficient cause of its salubrity, and the materials of which the buildings themselves are composed (either by their nature or from the fact that they contain moisture and shelter the ubiquitous microbe) may be the efficient cause of its insalubrity. Therefore the most air and the least material was the idea or principal object sought for in the construction of this hospital. Following modern hygienic ideas, no superposed wards are allowed. A high hospital, with the patients piled, as it were, on top of one another in stories, is a great mistake. So much was it thought so that, when the new Hôtel-Dieu here was built, after it was all finished they tore down a third story that had been put on. It still has two stories, and is not so healthy as the form of building of the description of which we are now speaking. The system used in this hospital is Tollet's, and the company that uses this architect's plan is now building several large hospitals in France, one of which, a very large one, is at Montpellier. They have already put up a number, but the Bichat is the only one as yet of the kind in Paris. It is based on what is called the "ogivale" form, which means that the ceilings are arched in the pointed Gothic vaulting style, the arches crossing the vault diagonally from one side to another. The object of having oval-shaped ceilings is to prevent any dead points in the ventilation. It is well known that in rooms with the usual flat ceilings there are places which cannot be properly ventilated, even though all the windows and doors, as well as the fireplaces, are opened. This can be readily proved by letting small air-balloons go up in such a room and seeing how they will settle in certain corners, not to be driven out by any possible regular ventilation. In the ogive form the ceilings all slope upwards in oval shape to the summit, where there are openings, in covered chimney style, which draw all air towards them, so that even with shut windows there is a constant change of air and perfect ventilation. No angles of any kind exist to harbor any of the micro-organisms. Even the floors, which are of a hard sort of asphalt, are slightly curved towards the sides and ends. No wood is used in the building except for the doors and windows and on the outside. The walls are of iron, or of brick in places; and the roof is separated from the vaulted ceiling by a wide space which has its air renewed constantly. The disinfection of the building is accomplished by an ingenious system quite as good as the old style of burning the hospital down, and much cheaper. It is easily accomplished by applying a coat of petroleum to a portion of the plastered inside wall (which is painted) and then setting it on fire. This gives a heat of about 110° C., which is quite enough to kill infectious germs. This is proceeded with until all the inside walls and ceilings are treated, and they are all then repainted, the floors washed down, and new beds and bedding supplied; when it is as good as a new hospital. There are four of these Gothic wings in the Bichat Hospital, besides a central building. The hospital also has a great advantage in position. It is in one of the bastions of the line of fortifications by which this city is surrounded, that the buildings have been constructed, forming one of a proposed circle of small hospitals that are to surround the city if the hygienists have their way. This one overlooks the country outside, being at the outskirts of the town, standing on the Boulevard Ney. It contains only one hundred and eighty-four beds, but, like most of the Paris hospitals, it has many extra cots, and usually has over two hundred patients in the wards. It is in reality quite a *maison de santé*, as the French call the smaller private hospitals. It is here that Professor Terrier performs his very successful surgical operations on women, such as ovariotomy and hysterotomy.

Without giving the details which have appeared *in extenso* in the *Revue de Chirurgie*, we may speak of one of his late operations (having seen one to-day) of vaginal hysterotomy. In this he was assisted by Professor Richélot. Only a few days ago, Dr. Terrier

communicated to the Société de Chirurgie an observation of this style of operation, of which this was the fifth that he had performed. As a rule, they were in cases of uterine cancer. The last was a woman of 44 years, with an epithelioma which had not as yet attained any great extent. For several days before the operation she had been submitted to frequent injections with a solution of corrosive sublimate, and during the intervals the vagina was kept filled with iodoformed gauze. The operation of hysterotomy was very neatly and expeditiously performed. In place of tying the broad ligaments, two long pressure-pincers were put on and left forty-eight hours in place. In regard to the other patients who had submitted to this operation, one of them, operated upon one year ago, is still quite well; another, seen six months ago, was also without any return of the disease.

The medical service of the Hôpital Bichat is under the charge of Drs. Henri Huchard and A. Gouguenheim. We called attention in a former letter to Gouguenheim's intra-pulmonary injections of corrosive sublimate, and following his service we have been kindly permitted by him not only to see but also to perform this operation. It is very simple indeed, and is now the constant and regular practice in Dr. Gouguenheim's wards. As soon as auscultation and percussion have shown that a cavity exists, this treatment is ordered. A solution of mercuric chloride (one to two thousand) is taken up in a small syringe, with a longer needle than that used for hypodermic service; a little carbolized oil is rubbed over the needle, and it is then inserted between the second and third costal cartilages into the lung-tissue, the patient being directed for the moment to stop breathing and keep his mouth shut. This is done in front and also to the side of the lesion. Care is taken to keep a little distance from the sternum, for fear of touching the internal mammary artery. The direction is then given to press the handle of the syringe down *very slowly* until some twenty or thirty drops have been injected. *Should the patient cough, the needle is at once withdrawn*, no matter what quantity has been used. This is considered the important point here. The patient is instructed not to talk for some time after the operation. As a rule, this is very well borne, and does not cause any pain. From personal experience it can be recommended as a painless operation, and quite as easy to perform as a hypodermic injection. In most cases there is a considerable benefit derived from this treatment. One woman, seen this morning, who had come in with severe cough, after the third or fourth injection has lost all cough, and now seems to be on the way to great improvement. Of course the usual medical aids in phthisis are not to be neglected, but continued with the injections. The solution may be stronger than that above mentioned; it may be used one to one thousand, or even above this strength. Dr. Gouguenheim does not approve of mixtures for these injections, but prefers to use the solution of corrosive sublimate alone. He, however, thinks that carbolic acid might be tried, or even iodine, but singly, and not as recommended by a recent writer,* who gives a prescription including atropine and morphine, etc., intended to calm pain, no doubt; but the operation, *per se*, *does not cause pain*, and if the injection causes pain, or even coughing, it is not used here. In conclusion, these intra-pulmonary injections can be highly recommended as giving no pain and causing considerable improvement in symptoms.

The position of *médecin des hôpitaux* is one that is very difficult to get in Paris. As it is only given, like most of the medical places, after a public examination or *concours*, it brings out the best obtainable talent. The pay of the hospital doctor is small (six hundred dollars a year), but the opportunity for distinction is very large, and the privileges are great. For instance: although they are divided into physicians and surgeons, they are not compelled to stick to any certain routine, for they can establish besides their usual polyclinic any treatment of special diseases they choose. So, at this hospital above described, Dr. Terrier makes a specialty of surgery of women, and Dr. Gouguenheim takes up diseases of the throat. Indeed, his service is about the only one here in which such diseases can be studied to advantage. Two dark rooms have been fitted up with all the modern instruments to give free instruction in laryngeal and pharyngeal diseases, with rhinology. The number of patients presenting is quite large, and interesting cases are numerous, which are usually reported in the journal of which Dr. Gouguenheim is the editor.†

Among the patients now under treatment in his general ward is one whose case has attracted my attention and deserves mention. A man, aged 40, was brought to the hospital with a diagnosis of typhoid fever; his temperature was 104° F. (40° C.); he had severe headache, with slight diarrhœa, and had reddish marks on his abdomen. He was at once put on the usual treatment for typhoid fever; but, on the doctor making his usual morning visit the day after, he noticed that the man's lower lip looked swollen and red. On examination, this proved to be a chancre (syphilitic), and the red marks on the body proved to be roseola. Mercury was ordered to be rubbed under the axilla and on the legs, when, a day or two later, the erythema was

* Dr. John Blake White, "On Intra-Pulmonary Injections of Carbolized Iodine." *Medical Record*, May 22, 1866.

† Annales des Maladies de l'Oreille, du Larynx et du Pharynx.

gone. Here, then, was an instance of false typhoid fever, in reality a *syphilitic fever*, which has been so well described by Professor Fournier; and without the chancre on the lip, it might well have passed without being recognized.

Stricture of the Urethra and Internal Urethrotomy.—A recent clinical lecture of Professor Guyon's and a discussion on these subjects permit us to collate the latest ideas of the principal French surgeons on these interesting topics. Dr. Guyon reported the case of a patient 64 years of age, who since the age of eighteen had had several attacks of blennorrhagia, and in 1870 had his first difficulties in micturition. M. Guyon said that notwithstanding the patient had a dilatable stricture, he would cut it; and on this statement he proceeded to give some points about stricture that have been as yet not well brought out. As a rule, but little is said in regard to the form, the extent, the hardness, and even its seat is usually not well defined. One point that he advanced was that stricture of the membranous portion, properly speaking, does not exist, though described, for (except cases of traumatism) the seat of strictures is always in the anterior portion of the urethra, and here they may extend from the anterior to the posterior meatus. Another point which should be always stated is the fact of its being dilatable or not. The cause here is of great importance; for a traumatic stricture has much less chance of being dilatable than that of blennorrhagia; also penile strictures are less dilatable than perineal. In order to get proper ideas about a stricture, Dr. Guyon advises catheterism with the olive-shaped bulb explorator. With its use, in the case in question, he was able to state that there was a stricture with a number of rings, that it was dilatable, and its seat was in the anterior portion of the urethra. If the exploring instrument is stopped, notwithstanding that you use smaller and smaller numbers, you will say that there is a stricture; which may be so. But, to prove it, you should *pass by the stricture;* and the present case shows the importance of this, as, ring by ring, the Professor was able to show that a number of strictures existed, and then the passage was clear to the bladder; and in withdrawing the instrument the sensations given were even more conclusive, as the olive came successively against the seat of the constrictions. The length by measurement, and multiplicity, were thus made out. As a rule, in such cases, the stricture is dilatable; but, the patient in question being subject to shivering and fever when it was attempted, it was rejected. It is just in such cases that internal urethrotomy has its advantages: so that the surgeon should know that if he has the chance of this last operation when the stricture resists dilatation, he also can use it when general symptoms or other considerations render the dilatation dangerous.

Professor Le Fort, speaking at the Société de Chirurgie, opened the discussion on this subject. He never uses either internal urethrotomy or divulsion, but introduces a conducting bougie (which can be facilitated by first passing a large conical one up to the level of the stricture and pressing on it for a moment. This will give a conical point, and at its middle will be found the place to pass the finer bougie). This having been done, a solid conical bougie is screwed on to the first one, and dilatation can be proceeded with without forcing. Dr. Le Fort thinks that any other method may lead to complications.

Dr. Tillaux said that he for his part did not adopt any exclusive method, and, while believing it best to use dilatation as long as possible, he did not hesitate to abandon dilatation as soon as the larger sounds could not be used or when they could not be supported by the patient, and then he proceeded to internal urethrotomy.

Professor Trélat was not of the opinion that internal urethrotomy was a dangerous operation, and thought it gave excellent results; but that one should do all that could be done first in the way of dilatation. In any case it could not replace dilatation, for it was in reality a method adjuvant to dilatation both before and afterwards. Owing to modern antiseptic treatment, fever tends to disappear from these operations.

Professor Verneuil said that he was also a partisan of internal urethrotomy, but did not wish to see its use exaggerated, as it certainly had grave contra-indications, and when the bladder and kidneys were diseased he often preferred external urethrotomy.

On the Influence of Fats in Nutrition.—Dr. Débove, who recently studied the influence of water on nutrition, has been making some experiments on the above subject, and he finds that the results are very interesting. His experiments were made on man, physiologists having made such experiments only on animals. He proceeded, as he did in his experiments in regard to water, by submitting his patients, during a first period, to a fixed régime of two hundred grammes of meat, one litre of soup, and six hundred grammes of bread until he got them to an invariable weight. Then, in a second period, he added a certain quantity of oil, varying between fifty and two hundred grammes. During a third period he suppressed the fatty matter and maintained the first ration. Every day the weight was noted, and the urine was kept and analyzed. Under these conditions he saw in the second period an augmentation of weight that corresponded very nearly to the whole weight of the oil ingested, so that nearly all the fat was fixed in the tissues. This continued into the third period, as the

patients, not having any need to use the stored-up force, kept their weight. Urea diminished in the second period, which proves, what we already know, that fats act as a saving element and restrain the combustion of nitrogenized matter. During all the time of the experiment the subjects of it were kept at a fixed and regular kind of employment. To bring out the object of these researches, Dr. Débove makes this comparison. Suppose a man having a certain capital and spending the interest of it annually. At a certain moment his capital increases, or rather the interest from it; but his expenses are just the same. His capital is increased by just as much as the increase of the interest was. This was the condition of the subjects treated. In other words, a fat man is one who does not spend all his income, and to diminish his weight we must first try to make him thin, and then get him on to a certain fixed ration.

Dr. Gallard's Clinic for Diseases of Women at the Hôtel-Dieu.—The very large number of patients treated, and the fact that Dr. Gallard is the most prominent of the specialists of women's diseases in Paris, lead us to give copies of a few prescriptions in the most common forms of disease met with here. It may be stated that so frequent is the demand for these formulas that the doctor has them printed all ready for use. Even his signature is lithographed.

The following is given in all cases of *metritis* or in *anæmia:*

1st. ℞ Ferri subcarbonat., 10 grammes;
Extract. cinchonæ (soft), 10 grms;
Extract. opii aquos., 1 gramme. M.
Divide into one hundred pills. Not to be silvered.

2d. Drink iron-water at meals. To be made by putting a few iron nails in common water.

3d. Take every week two sulphur-baths, or every morning take a shower-bath of fifteen seconds.

4th. Take at the noon meal every day a wine-glass of cinchona-wine.

5th. Take once every week thirty centigrammes of powdered rhubarb at dinner (last evening meal).

The next one is given in all cases where a *uterine fibroma* has been found:

1st. ℞ Extract. hyoscyami, 3 grammes;
Plumbi iodid., 6 grammes;
Adipis, 50 grammes. M.
Sig.—Every evening use this pomade by friction on the abdomen.

2d. In the morning wash it off with soap and water.

3d. Twice a week stop these frictions, and use instead tincture of iodine painted on the abdomen.

4th. Take every day a teaspoonful of this solution:

℞ Potassii iodidi, 10 grammes;
Aquæ destillatæ, 250 grammes. M.

5th. Twice a week take a salt-water bath, and daily use very large vaginal injections of fresh water.

6th. Support the viscera with an elastic abdominal belt.

In cases of *cancer of the uterus* the following is given:

1st. ℞ Conii fructus pulveris,
Extracti gentianæ, āā 3 grammes;
Extracti opii aquos., 60 centigrms.
Divide into sixty pills. M.
S.—Take one every morning.

2d. Apply on the belly cataplasms of laudanum, as needed, for pain.

3d. Use twice a day an injection of water in which for every pint add a tablespoonful of
℞ Acid. carbolic. (crystals), 10 grms.;
Alcoholis, 250 grammes. M.
Or else add half a teaspoonful of this: Perchloride of iron (solution Pravaz) at 30°.

In all cases of women also having *phthisis* the following directions are given:

1st. ℞ Sodii arseniatis, 10 centigrammes;
Aquæ destillatæ, 250 grammes. M.
S.—Take a teaspoonful with every meal.

2d. Use as a drink an infusion of pectoral flowers, to which add syrup of tolu.

The French infusion of pectoral flowers consists of mallow, coltsfoot, catsfoot, red corn, rose or poppy, guimauve or marshmallow, etc.; and it might be remarked here that while the practice of the French physicians of giving infusions of herbs may seem to us old-fashioned, still it is wonderful to see what relief they often afford to patients.

3d. Take every evening, at least two hours after the last meal, a pill containing ten centigrammes of cynoglossum.*

4th. Paint every evening one-quarter of the chest with tincture of iodine, in such a way that you do not paint over the same place more than once in four days.

With the above internal treatment, Dr. Gallard uses the usual local applications *per speculum*, once a week, that are in use by gynæcologists. THOMAS LINN, M.D.

PARIS, June, 1886.

COCAINE IN SEA-SICKNESS.—The *Medical Record* (vol. xxix. p. 706) lately contained a communication extolling cocaine hydrochlorate in half-grain doses for the treatment of sea-sickness, and shortly afterwards (on page 56, vol. xxx.) it is stated that "cocaine is of no value in sea-sickness." Which shall we believe?

* The pill of cynoglossum used in Europe usually contains opium, to which its therapeutic effects are probably due.—ED. P. M. T.

PROCEEDINGS OF SOCIETIES.

NEW YORK ACADEMY OF MEDICINE.

A STATED meeting was held June 17, 1886, CHARLES CARROLL LEE, M.D., Vice-President, in the chair.

ALEXANDER'S OPERATION—ITS APPLICATION TO UTERINE DISPLACEMENTS.

Dr. W. M. POLK read a paper on this subject. The operation consisted in shortening the round ligaments,—structures which were generally considered, under ordinary circumstances, too trivial to afford much support to the uterus. But their ability to withstand sufficient traction to support easily the retroverted uterus had been demonstrated by Professor J. Williston Wright, who, at his request, experimented upon two ligaments or parts of ligaments, the part taken being the outer or the smaller end. The first did not break until the suspended weight reached five pounds, and the other four and a half pounds. Before the break occurred the ligaments had stretched to about twice their normal length, but the stretching did not begin until the weight had reached two and three-quarters pounds with one, and three pounds with the other. This experiment Dr. Polk regarded as of importance in the face of the discussion which had arisen regarding the efficacy of Alexander's operation and the power of the round ligaments to support the retroverted uterus.

The effect of equal traction upon the round ligaments was to lift the fundus of the uterus upward and pull it forward until it lay immediately behind the symphysis pubis; traction upon one ligament drew the fundus to one side and upward until it rested on the pelvic brim above the pectineal eminence.

If these ligaments were shortened, the question which would suggest itself at once was, What would happen if pregnancy occurred? Would the uterus be able to rise in the abdominal cavity? One of his patients had gone to the sixth month of pregnancy since the operation, and but for some dragging pain in the pelvis he had been unable to detect anything abnormal in the condition of affairs. The uterus could be easily felt through the abdominal walls. Alexander had reported some cases which had gone to term without accident.

The crucial test of the value of the operation was the clinical result. Without taking up the time of the Society with a review of what had been accomplished by others, he would give the results in fourteen cases which he had operated upon. In all of these, except two or three in which adhesions had existed, the result had been entirely satisfactory. In some of the cases, however, the operation had been performed too recently to judge of the permanency of the benefit experienced. Some of the patients had not reported since they left the hospital, but, as they were instructed to return in the event of any discomfort, he inferred that their trouble had been permanently relieved. Certainly at the time the patients left the hospital, with one exception, the results had been very good.

The details of the histories of three cases were read as illustrative of the three conditions for which the operation was demanded. In the first the patient was aged 35; had begun to menstruate at fifteen; had always been regular until two years ago. She had given birth to several children; the last was born two years ago. Since then she had suffered from pain in the back on the right side, shooting down into the leg; there was some leucorrhœa; the bowels were constipated and their movement was painful. Clots were sometimes passed at menstruation. The uterus was found retroflexed, but it was easily replaced. Alexander's operation was performed, and the patient left the hospital at the end of six weeks in very good condition.

In the second case the patient had begun to menstruate at twelve; her periods were regular, but painful. Fifteen years ago she lifted a heavy boiler and felt something give way in the back, with shooting pain; about a year afterwards she noticed the womb in the vagina; she was unable to work. On examination, the womb was found completely outside of the vagina. The patient was operated upon by Alexander's operation, and subsequently the perineum was sewed up and the vagina narrowed. The patient made an excellent recovery. At the time of the operation the uterus measured four inches; at the time she left the hospital it measured two and a half inches.

The third case was one in which the patient complained a great deal of dragging pain about the back; pain was greatly aggravated during bimanual palpation. Under ether, nothing abnormal was found except a prolapsed and very sensitive ovary. Alexander's operation was performed, with the result of lifting the ovary and relief from pain.

The cases to which the operation was applicable were those of retroversion and retroflexion of the uterus without adhesion to adjacent viscera, those of prolapsus of the uterus, and those of prolapsus of the ovaries. No case should be operated upon in which relief could be obtained by the use of a pessary, also none in which the uterus was firmly fixed in the hollow of the sacrum.

The operation was called for in every case of prolapsus of the uterus. Dr. Polk gave more at length the reasons why the operation was demanded in these cases in which other measures had so often failed. He did not regard Alexander's operation alone as sufficient for the relief of procidentia uteri: in connection with it, the perineum should be repaired and the vagina narrowed.

Speaking of the operation itself, Dr. Polk said it might naturally be inferred that some vesical disturbance would follow it, but such had not been the case in any of his operations. He also called attention to the fact that those who had operated only upon the dead subject would find that the operation was more difficult than when performed upon the living subject. If properly performed, the operation was a simple procedure: it was as simple as sewing up the lacerated cervix. No more preparatory treatment was necessary than was required in any other surgical operation. The patient was better for having the bowels move; she should take a general bath; the pubes should be shaved and washed with soap and water. Ether being required, there should be the usual abstinence from food. The entire operation should be as carefully performed as if it were intended to enter the peritoneal cavity. Observance of strict antisepsis would prevent the occurrence of suppuration and sinuses, which were so likely to occur in this locality. The operator need trouble himself about no other guide than the spine of the pubis. Having found that, he should cut boldly through the tissues, the objective point being the external inguinal ring, which was situated in the fibres of the external oblique muscle. These fibres were glistening and different in appearance from anything with which they were associated. Having isolated the external ring, the round ligament would be found in a mass of fat and blood-vessels, probably moving up and down with the respiratory movements of the peritoneum. Putting his finger upon it, the operator would find that it sank into the external ring. He now made traction with the hæmostatic forceps, drawing out the fat and blood-vessels, when the round ligament would appear and present its distinct structure. The cord should now be grasped with a second pair of hæmostatic forceps and dragged out, disconnecting it from its attachment to the peritoneum and walls of the ring. The uterus was next placed in its proper position, preferably by the sound; if it could not thus be done, then by the fingers of an assistant introduced into the rectum. The operator should carefully cleanse his hands after introducing them into the vagina, before returning to the operation-wound. Equal traction should be made upon the two ligaments until they held the uterus in its normal position. They should then be stitched by at least three or four sutures of the largest-sized strongest catgut to the upper face of the pubic bone and to the external ring. He would introduce a bone drainage-tube, especially if there were much adipose tissue. The outer wound was closed by silk, usually not more than three or four sutures being required. The wound was then covered with Lister dressing, and strict asepsis was observed throughout.

The external wound need seldom be more than two inches in length, but he would not hesitate to go up to the internal ring if he could not otherwise find the round ligament. He had never felt that there was any special danger connected with the operation; he had never noticed any induration at subsequent examinations. The patient was kept abed four weeks after the operation. In some cases he tamponed the vagina with cotton to retain the uterus in position, in some he used a pessary, in others the entire support was left to the round ligament from the first, and all had done well. In two or three cases the relief had not been such as he had hoped for, but they were among the first operated upon, and really the adhesions found would now be regarded as contra-indicating the operation.

DISCUSSION.

Dr. JAMES B. HUNTER said he was rather sorry to be called upon to discuss the paper, for he regarded Alexander's operation as upon trial, and argument was not worth much except as connected with much clinical experience. He had performed the operation in only three cases. He thought there was no question but what it had a future. To say that the operation was only suitable for certain cases was to say that which was true of every operation. The three patients whom he had operated upon he had examined that morning, and in all he found the uterus firmly moored behind the symphysis. He thought no one would undertake the operation when there were pelvic adhesions to any considerable extent. But in cases in which the uterus was retroverted, not firmly adherent, and there was prolapsus of the ovary, and the patient was unable to tolerate a pessary, the operation offered advantages which no other procedure possessed. There had been some doubt, as suggested by Dr. Polk, regarding the danger of peritonitis. As bearing upon the possible danger of exciting inflammation of the peritoneum, he would say that while experimenting upon the cadaver he had been surprised to be able to draw the peritoneum through the internal ring by pulling upon the round ligament. This fact had been explained on the supposition of inflammatory adhesions. But if it could take place on the cadaver, why not on the living subject? He did not regard the operation as difficult. In one instance he found the extremity of the round ligament so small that he questioned whether it would be strong enough to afford any support to the uterus. On drawing it out, however, it became larger and larger until all doubts as to its ability to support the uterus disappeared.

Dr. W. T. LUSK said that up to the present time he had been chiefly an observer of the work of others regarding Alexander's operation. At first he was rather sceptical, but he had become a complete convert to the operation. He believed it was destined to do a great deal of good for working-women. It

was only moderately difficult, and with proper precautions he thought it should not be attended by any serious danger; the accidents which had been reported could have happened in the simplest operations. He asked, Was it not possible to do with pessaries all that could be accomplished by this operation? He answered, positively, No. Pessaries were good things for the rich, who were able to ride in a carriage, sit on the sofa, and have others do their work; but pessaries were not, in many instances, sufficient for the working-class. The only question with regard to which he was in doubt was as to the effect of the operation upon pregnancy. Alexander had reported two cases of confinement after the operation; but the number had not been sufficient.

Dr. H. J. BOLDT had experimented upon the cadaver alone, and had had some difficulty in finding the round ligament. He thought the uterus should be lifted into position by the ligaments without the aid of the sound, in order to learn whether the ligaments were sufficient alone.

Dr. LEE had performed Alexander's operation in three cases, all in private practice, and all within eighteen months. The ultimate result had been good in each case, but in one an abscess formed. The operation was performed for retroversion or retroflexion. The uterus retained its improved position in each case. He thought, with Dr. Hunter and Dr. Lusk, that the operation had a great future in the class of cases so well described and limited by Dr. Polk in his paper.

Dr. POLK closed the discussion, and said he had received a note from Dr. Jacobus, stating that he had examined one of the patients operated upon by Dr. Polk, and found the uterus in as bad a position as it had occupied. Dr. Polk remarked that it was evident this was one of the cases reported in his paper, in which there had been adhesions and in which recontraction had taken place, and the final result had not been all that he had hoped for. Anyway, he did not claim that Alexander's operation would always prove successful; he only claimed that in the majority of cases it would accomplish what was expected of it.

NEW YORK PATHOLOGICAL SOCIETY.

A STATED meeting was held June 9, 1886, JOHN C. PETERS, M.D., Chairman *pro tem.*

CHRONIC SALPINGITIS AND CYSTIC OVARIES.

The specimens were presented by Dr. W. Gill Wylie for a candidate.

FATTY EMBOLISM IN THE LUNGS.

Dr. FRANK FERGUSON presented specimens for microscopical examination of fatty emboli of the lungs, found in the body of a man who had died after severe injuries sustained from a fall. The lungs appeared unusually anæmic, and the capillary vessels were completely occluded by the presence of fat. There were also fatty emboli in the kidneys. The specimens were cut fresh by Valentine's knife. Dr. Ferguson thought that if he were to devote all his time to microscopical work he should prefer in all cases fresh specimens. Although the sections were thicker, this objection disappeared after a little experience. Sections could be made from all organs in the fresh state except from the spleen.

A SERIES OF SPECIMENS FROM TAIT'S OPERATION.

Dr. W. GILL WYLIE presented over a dozen specimens from a series of twenty-eight cases of Tait's operation performed during the last year, or since the last time he presented specimens from a series of twenty-five cases in which he had performed this operation. Specimens of this kind were no longer interesting because rare, for they were getting to be quite numerous. He presented them because they were good illustrations of pyosalpinx, and because he had made it a rule to preserve all of his specimens, in order to verify the needs of the operation in cases in which he performed it. Two of the twenty-eight patients died; the remainder recovered. In the two fatal cases there were severe complications. In fully one-half of the cases there was well-marked pyosalpinx in different stages. In many the tubes were distended with pus; while in many more they contained a coffee-colored, rather thin fluid, which was the result, he believed, of degeneration of the lining membrane with slight hemorrhages. In nearly all cases in which the end of the tube was stopped the ovaries were found cystic, and he was disposed to think that any disease which led to stopping up of the tubes would in a comparatively short time lead to cystic degeneration of the ovaries. By cystic degeneration he did not mean the formation of small cysts which some pathologists claimed were due to failure on the part of the corpus luteum to burst, but cysts the result of real degeneration. They varied in size from that of a pea up to that of an orange. Occasionally there was cystic degeneration without closure of the tube, but that was not so common. He believed that in true cystic degeneration of the ovaries without marked disease of the tubes there was almost always an hysterical condition.

Dr. PUTNAM JACOBI thought it strange that, in the report of his large experience, in not a single case had Charcot referred to disease of the ovaries as the cause of the hystero-epilepsy.

MEDULLARY CARCINOMA OF THE OVARY, WITH SECONDARY DEPOSITS.

Dr. E. M. CUSHIER presented specimens removed from the body of a German woman

aged 26 years, the mother of three children, who about four months prior to her death had noticed an enlargement of the abdomen. Her health previously had been good. The tumor was painful, was situated to the left of the median line. The patient had a cachectic appearance. Some days before death she had a convulsion, and afterwards remained in a state of partial stupor. Later there was external strabismus in the left eye, followed by dilatation of the pupil. The right eye appeared normal. There was albumen in the urine at the later examinations; none when the patient entered the infirmary.

The autopsy revealed a large tumor in the left side of the abdomen, but developed from the right ovary. The adhesions were firm and extensive. It had the microscopical appearances of a medullary carcinoma. There were two small nodules in the kidneys, one of considerable size in the liver, and the lungs were studded with small nodules. The brain showed changes which would be described by Dr. Putnam Jacobi. As far as Dr. Cushier's examination had extended, the appearances of a medullary cancer were present only in the ovarian tumor; but she desired a further examination of the several specimens to be made by the Committee on Microscopy.

CARCINOMATOUS TUMORS OF THE BRAIN—CEREBRAL HEMORRHAGE.

Dr. PUTNAM JACOBI presented the brain in the case just narrated by Dr. Cushier. The largest tumor was situated in the second and third convolutions of the left hemisphere. So far as was observable, however, the patient's speech had not been affected. There was also a small tumor in the anterior convolutions of the same hemisphere, and likewise one in the occipital region of the right hemisphere. The convulsion seemed not to have been due to the presence of these tumors, but to a hemorrhage in the right peduncle encroaching upon the caudate nucleus. She was unable to explain the eye-symptoms from the lesions found. It had been her impression that the albumen appeared in the urine only after the convulsion, and that it was not the cause of the convulsion.

Dr. CUSHIER was not positive that the house-physician had said the urine contained albumen before the convulsion or only afterwards.

Dr. AMIDON said the temporal lesion was situated where one would expect it to affect the speech, and the patient's tendency to be reticent might be accounted for in that way rather than on the supposition of stupidity. As Dr. Jacobi had said, the tumor appeared quite vascular.

LARGE DERMOID CYST OF THE OVARY.

Dr. E. N. LIELL presented a tumor, weighing with the fluid over sixty pounds, removed from a woman 69 years of age. The patient had borne three children; had ceased to menstruate twenty years ago. Her health had always been good until March last, when she noticed enlargement of the abdomen and had some pain. Her physician sent her to Dr. H. Marion Sims, who removed the large dermoid cyst from one ovary that afternoon. It was, of course, too early to say what would be the result of the operation. The tumor contained a grumous mass and two bones. Further examination will be made by the Committee on Microscopy.

A STATED meeting was held June 23, 1886, the President, JOHN A. WYETH, M.D., in the chair.

Dr. FREEBORN, of the Committee on Microscopy, made a report upon the specimen of enlarged bronchial glands presented at a recent meeting by Dr. J. Lewis Smith. After examining more than thirty specimens, he finally found a tubercle-bacillus.

In the portion of tumor of the brain presented at the last meeting by Dr. Putnam Jacobi, he had been unable to find any evidence of carcinomatous deposit.

The tumor presented at the last meeting by Dr. W. Gill Wylie, who thought it might be a calcified ovary, proved on section to be a dermoid cyst.

LARGE DOUBLE FIBROID TUMOR OF THE OVARY.

Dr. H. MARION SIMS presented a fibroid tumor between five and six pounds in weight, developed from the ovary, and removed three weeks ago from a woman 63 years of age. The patient had first noticed enlargement of the abdomen in March last. She made an excellent recovery from the operation. Besides being an unusually large fibroid tumor of the ovary, it was double, a condition which he had not before seen.

SPINDLE-CELLED SARCOMA OF THE BREAST.

Dr. BANG presented a tumor of the breast within which was a cyst which had contained about three tablespoonfuls of sanguineous fluid. Dr. Frank Ferguson had examined the tumor, and pronounced it a spindle-celled sarcoma. The patient, aged 30, healthy, married, but never having borne any children, first noticed a tumor the size of a hazelnut four years ago. Three and a half years ago it had attained to the size of a walnut. She then fell and sustained a severe blow on the breast, after which the tumor developed rapidly and involved nearly the whole gland. It was hard, but freely movable. There was one enlarged axillary gland about the size of a pea, which was not recognizable soon after the tumor from the breast had been removed. The patient made an excellent recovery.

The PRESIDENT said he had removed a

good many tumors from the breast, but he had never seen a spindle-celled sarcoma of that gland.

The Society adjourned until September.

REVIEWS AND BOOK NOTICES.

TRAITÉ ÉLÉMENTAIRE DE L'ANATOMIE MÉDICALE DU SYSTÈME NERVEUX. Par CH. FÉRÉ. Paris, 1886. Publications du *Progrès Medical.*

The medical relations of the different portions of the nervous system, at least the most important and best established of them, are set forth in this compendious treatise, which otherwise is a summary of the descriptive and topographical anatomy of the nervous system. A large number of diagrams and figures, both normal and pathological, serve to illustrate the text, which is clearly written and is based principally upon the works of Charcot, Nothnagel, and Erb. The work is a useful one for reference with regard to the anatomy of the nervous system, in both its central and peripheral portions, and the medical applications will be found to make it especially serviceable in explaining some of the difficult problems of neuro-pathology.

NEW REMEDIES AND CLINICAL NOTES.

TREATMENT OF EPILEPSY.—Dr. William Moore, of the New York City Hospital for Epileptics, offers some interesting remarks in regard to treatment (*St. Louis Courier of Medicine*). The cases recorded number forty males, divided into three classes according to etiology and period of development. The first class are surgical cases, four in number. Three of these were operated upon for depressed fracture of the skull; in two of these there was a marked decrease in attacks after operation, and one was permanently cured. In addition to operation, the patients were all under the course of treatment presently to be described. The second class includes cases where the attacks began after twenty years of age. Of these there were five. The cause in three was traced to intemperance; the etiology was obscure in the remaining two. The third class were congenital or occurring within two years after birth.

In the treatment of these cases a very important place is given to hygienic and dietetic management, and the removal of all exciting causes, the patients pursuing occupations most agreeable. With regard to diet, the time of eating the principal meal of the day and irregularity in the quantity and quality of food were all found to be in direct ratio to the number of attacks, and the correction of which proved the accuracy of the observation. Closely related to diet is constipation of the bowels, it being a notable cause of the excitation of attacks. The utmost regularity in this respect should be maintained. The temperature of sleeping-apartments should be kept low, about 64° F. A rise of ten degrees from this has been found to increase the number of paroxysms. The treatment, with the foregoing management, found most beneficial consists of a modification of the "Brown-Séquard mixture:"

℞ Potass. iodidi, ʒij;
Potass. bromidi, ℥j;
Ammonii bromidi, ʒiij;
Potass. bicarbonat., ʒj;
Tinct. calumbæ, ℥j;
Aquæ destil., ℥vj. M.

Sig.—Teaspoonful t. i. d., and three teaspoonfuls before the time when attacks usually take place. If these cannot be estimated, three teaspoonfuls should be given at bedtime.

The following are the statistics for three periods of six months each for genuine attacks:

First period: Total number of cases treated, 2485; average attacks per patient 62.2. Treatment here was nitrate of silver, oxide of zinc, bromides, etc., without attention to diet and bowels.

Second period: Cases, 2424; average per patient, 60.9. Treatment, bromides and opium, with attention to hygienic management.

Third period: Cases, 893; average per patient, 22.3. Treatment in third period consisted of rules and treatment above described strictly adhered to.

A SEVERE CASE OF DELIRIUM EBRIOSUM.—At a stated meeting of the Cincinnati Academy of Medicine, held May 18, Dr. E. G. Zinke reported the following case. A clerk in a shoe-store, æt. 33, had been addicted to the use of strong drink, especially whiskey, for ten years; had often been treated previously by the reporter for nervous attacks of a day or two in duration. When seen, he had been restless and without sleep for five days; temperature, 100°; pulse, 150, tremulous; appetite good; talkative and delirious. Prescribed

℞ Chloral hydrat., ʒij;
Potass. bromidi, ʒiv;
Codeinæ sulph., gr. ij;
Syr. simplicis,
Aq. dest., āā f℥iss. M.

Sig.—Tablespoonful every hour till sleep is produced.

He took all this without procuring sleep. Requiring stimulant, he was put on ounce-doses of whiskey with thirty drops of laudanum every three hours. Still no sleep. Delirium desperate. It required three or four

men to hold him upon the bed. Fearing the opium and chloral, he was put on thirty-grain doses of the bromide of potassium every two hours. He obtained no sleep, but grew worse. One-half grain morphia subcutaneously and the strait-jacket were found necessary; and, lastly, the administration of chloroform, which put him to sleep in about an hour. This, however, lasted but a short time. A season of comparative quiet followed, but was succeeded by more violence than ever. The patient's appetite being good and his bowels regular, it was determined to administer the chloroform again. In large quantities this had some effect, and the patient improved. He was then put on chloral, and did well. Manifest prostration supervening, he was given tablespoonful doses of wine of coca every four hours. From this time on recovery was uninterrupted.

The patient during the five days took the following amounts: bromide of potassium, one ounce; chloral, three drachms; morphine, three grains; laudanum, five drachms; chloroform, twenty ounces. This seems a large amount of drugs. Still the fact remains that he was little affected by them; and the reporter thought it required the combined effects of all of them to produce the desired result. He admitted he had used heroic treatment, but thought the case demanded it.

MISCELLANY.

UNWHOLESOME CANNED PEAS.—The Health Board of Brooklyn has been looking into the healthfulness of French peas, and has condemned large quantities on account of injurious articles used in their preparation. The names of the brands which the Brooklyn authorities have decided to be unhealthy are the following: Henry Deler et Cie, Dandicolee et Gaudin, Bordeaux; J. Nouville, Bordeaux; Perry fils, A. Lazun, E. Estibal, Bordeaux; E. M. Daelzin, Bordeaux; D. M. Ausone, Bordeaux; L. Carpe et Cie, Luneville; Soule et Prise, Bordeaux; F. Fitonaine, Bordeaux; John Moir & Son, London, Aberdeen, and Seville; Charles Julien, Paris; Barton fils, Fontaine Frères, Paris; G. Talbot, Bordeaux. These names are given, as it may be useful to know what particular brands are held to be unhealthful. Five hundred grocers in Brooklyn have been notified not to sell peas coming from these houses.

MEDICAL MALPRACTICE IN CHINA.—The Chinese penal code does not favor medical malpractice, as the following quotation will show. "Whenever an unskilful physician, in administering medicines or using the acupuncture needle, proceeds contrary to the established forms, and thereby causes the death of the patient, the magistrate shall call in other physicians to examine the medicines or the wound. If it appear that the injury done was unintentional, the practitioner shall then be treated according to the statute for accidental homicides, and shall not be allowed any longer to practise medicine. But if he have designedly departed from the established forms and have practised deceit in his attempts to cure the malady, in order to gain property, then, according to its amount, he shall be treated as a thief; and if death shall ensue from his malpractice, then for having used medicine with intent to kill he shall be beheaded."

DANGERS OF SUBLIMATE SOLUTIONS IN OBSTETRICS AND SURGERY.—The *Medical Record* (July 10) calls attention editorially to the necessity of observing proper caution in the use of corrosive sublimate dressings.

DR. D. BRYSON DELAVAN has been elected Professor of Laryngology in the New York Policlinic, as the successor of the late Dr. Elsberg.

THE AMERICAN NEUROLOGICAL ASSOCIATION held its annual meeting at Long Branch on the 21st, 22d, and 23d instant, holding morning and afternoon sessions.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U.S. ARMY FROM JULY 4, 1886, TO JULY 17, 1886.

LIEUTENANT-COLONEL CHARLES PAGE, SURGEON.—Leave of absence further extended one month. S. O. 156, A. G. O., July 8, 1886.

MAJOR JOSEPH R. GIBSON, SURGEON.—Granted leave of absence for three months, to take effect about August 1. S. O. 158, A. G. O., July 10, 1886.

MAJOR WILLIAM E. WATERS, SURGEON.—Ordered for duty as post-surgeon, Fort Spokane, Washington Territory. S. O. 112, Department of Columbia, July 2, 1886.

CAPTAIN RICHARDS BARNETT, ASSISTANT-SURGEON.—Leave of absence extended six months on surgeon's certificate of disability. S. O. 162, A. G. O., July 15, 1886.

CAPTAIN EDWIN F. GARDNER, ASSISTANT-SURGEON.—Granted leave of absence for two months. S. O. 158, A. G. O., July 10, 1886.

FIRST-LIEUTENANT WILLIAM O. OWEN, JR., ASSISTANT-SURGEON.—Ordered for duty at Fort Schuyler, New York Harbor. S. O. 84, Division of the Atlantic, July 15, 1886.

LIST OF CHANGES IN THE MEDICAL CORPS OF THE U.S. NAVY FROM JULY 4, 1886, TO JULY 17, 1886.

A. R. WENTWORTH, ASSISTANT-SURGEON.—Detached from the U.S.S. "Brooklyn," and wait orders.

OLIVER D. NORTON, ASSISTANT-SURGEON.—Detached from the U.S.S. "Minnesota," and to the U.S.S. "Brooklyn."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U.S. MARINE HOSPITAL SERVICE FOR THE THREE WEEKS ENDING JULY 17, 1886.

WHITE, J. H., ASSISTANT-SURGEON.—Granted leave of absence for thirty days, July 12, 1886.

PETTUS, W. J., ASSISTANT-SURGEON.—When relieved at Charleston, South Carolina, to proceed to Savannah Georgia, for temporary duty, July 9, 1886.